HP ProLiant Servers Troubleshooting Guide

Abstract

This document describes common procedures and solutions for the many levels of troubleshooting for HP ProLiant G7 and earlier servers. This document is intended for the person who installs, administers, and troubleshoots servers or server blades. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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Introduction

What's new

The twelfth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-403, includes the following additions and updates:

- Updated Power source problems (on page 39)
- Updated HP SIM reports a drive fault on a hard drive managed by an HP Smart Array controller (on page 46)
- Updated The fault LED is illuminated on a hard drive managed by an HP Smart Array controller (on page 46)
- Updated No hard drives are recognized (on page 47)
- Updated General graphics and video adapter problems are occurring (on page 55)
- Updated Screen is blank for more than 60 seconds after you power up the server (on page 55)
- Updated During installation of Oracle Solaris, the system locks up or a panic error occurs (on page 63)
- Updated When to Reconfigure or Reload Software (on page 64)
- Updated Array Configuration Utility (on page 72)
- Updated Option ROM Configuration for Arrays (on page 73)
- Updated Automatic Server Recovery (on page 74)
- Updated the following section in HP Smart Update Manager deployment (on page 85):
  - Online deployment (on page 86)
- Added or updated multiple messages in Error messages (on page 93)
  - ADU version 8.0 through 8.28 error messages (on page 113)
  - POST error messages and beep codes (on page 123):
    - Non-numeric messages or beeps only (on page 123)
    - 200 series (on page 136)
    - 1700 series (on page 147)
    - 1800 series (on page 172)
- Updated Linux operating systems (on page 189)
- Updated Oracle Solaris operating systems (on page 192)

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Revision history

375445-402 (April 2011)

The eleventh edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-402, included the following additions and updates:

- Updated the HP ProLiant 100 Series Server troubleshooting information (on page 13) section to provide troubleshooting information for the HP ProLiant ML110 G7 Server and HP ProLiant DL120 G7 Server.
- Updated the following sections to include the HP Smart Update Firmware DVD:
  - Firmware updates (on page 20)
  - HP Smart Update Manager deployment (on page 85)
  - ROM Update Utility (on page 86)

375445-401 (January 2011)

The tenth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-401, included the following additions and updates:

- Added a new section to Getting started (on page 13):

  Performing processor procedures in the troubleshooting process (on page 18)
- Updated Breaking the server down to the minimum hardware configuration (on page 18).
- Updated the introduction and sections in Hardware problems (on page 39):
  - Unknown problem (on page 42)
  - Processor problems (on page 53)
- Updated multiple messages in Error messages (on page 93):
  - POST error messages and beep codes (on page 123)
  - Event List Error Messages (on page 173)
  - Port 85 codes and iLO messages (on page 181)
  - Windows® Event Log processor error codes (on page 185)
  - Insight Diagnostics processor error codes

375445-xx9 (June 2010)

The ninth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx9, included the following additions and updates:

- Added new section to Getting started (on page 13):

  Breaking the server down to the minimum hardware configuration (on page 18)
- Updated Diagnostic flowcharts (on page 24):
  - General diagnosis flowchart (on page 26)
  - Server power-on problems flowchart (on page 28)
  - Server and p-Class server blade POST problems flowchart (on page 33)

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- c-Class server blade POST problems flowchart (an page 34)
- Server and p-Class server blade fault indicatians flowchart (an page 36)

- Added and updated sectians in Saftware taals and salutians (an page 69):
  - Integrated Lights-Out 3 technalagy ("iLO 3 technalagy" an page 75)
  - Firmware (an page 80)
  - HP Smart Update Manager (an page 80)
- Added new sectians ta Hardware prablems (an page 39):
  - Battery pack prablems (an page 44)
  - Cable prablems (an page 58)
- Added a new sectian ta Saftware prablems (an page 62):

  ROM prablems (an page 66)
- Updated a sectian in Online resaurces (an page 88):

  Server dacumentatian (an page 88)
- Updated Firmware maintenance (an page 82)
- Added new errar messages:
  - ADU errar messages (an page 93)
  - POST errar messages and beep cades (an page 123)

375445-xx8 (July 2009)

The eighth editian af the *HP PraLiant Servers Traubleshaating Guide*, part number 375445-xx8, included the fallawing additians and updates:

- Added infarmatian ta the intraductian far the server pawer-an prablems flawchart (an page 28).
- Added new steps ta Pawer prablems (an page 39).
- Added a new sectian ta Fan prablems (an page 49):

  All fans in an HP PraLiant G6 server are nat spinning ar are nat spinning at the same speed (an page 50)
- Added a new sectian ta Memary prablems (an page 50):

  Server fails ta baat, all DIMM LEDs illuminate amber, ... (an page 52)
- Updated the cantent far Tape drive prablems (an page 53).
- Added new sectians ta Saftware taals and salutians (an page 69) :
  - Diagnastics tasks (an page 72)
  - HP Insight Server Migratian saftware far PraLiant
  - Array diagnastic saftware (an page 78)
  - HP Insight Remate Suppart saftware (an page 79)
- Added new cantent ta HP Resaurces far Traubleshaating (an page 88):
  - HP Guided Traubleshaating website (an page 88)
  - DDR3 memary canfiguratian (an page 91)
  - Pawer capacity (an page 90)

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- Added new error messages:
  - ADU Error Messages (on page 93)
  - POST error messages and beep codes (on page 123)

375445-xx7 (November 2008)

The seventh edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx7, included the following additions and updates:

- Added new information about Server updates with an HP Trusted Platform Module and BitLocker™ enabled (on page 23) to Common problem resolution (on page 20)
- Added TPM information to Drive problems (hard drives and solid state drives) (on page 46)
- Added information about HP BladeSystem c-Class enclosure fan problems to Fan problems (on page 49)
- Added HP Trusted Platform Module problems (on page 50) to Hardware problems (on page 39)
- Added SD card problems (on page 48) to Hardware problems (on page 39)
- Added USB drive key problems (on page 48) to Hardware problems (on page 39)
- Added TPM information to Remote ROM flash problems (on page 66)
- Added Service Essentials Remote Support Pack to Software tools and solutions (on page 69)
- Added TPM information to Firmware maintenance (on page 82)
- Updated the ADU error messages (on page 93) section to reflect the supported versions for the messages in this document
- Updated and added new POST error messages and beep codes (on page 123)

375445-xx6 (September 2007)

The sixth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx6, included the following additions and updates:

- Added new information about preventing electrostatic discharge (on page 16).
- Added new DIMM handling guidelines (on page 21).
- Added new procedures for troubleshooting drive problems (hard drives and solid state drives) (on page 46).
- Added information on new software tools and solutions:
  - HP Insight Control Environment Suites
  - HP Smart Update Manager (on page 80)
- Improved firmware maintenance (on page 82):
  - Added new technology
  - Expanded existing information
  - Added new firmware update procedures for unsupported processor stepping

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375445-xx5 (June 2006)

The fifth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx5, included the following additions:

- Added three new c-Class server blade flowcharts:
  - c-Class server blade power-on problems flowchart (on page 30)
  - c-Class server blade POST problems flowchart (on page 34)
  - c-Class server blade fault indications flowchart (on page 38)
- Added new processor error codes:
  - Windows® Event Log processor error codes (on page 185)
  - Insight Diagnostics processor error codes

375445-xx4 (May 2006)

The fourth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx4, included the following additions:

- Hot-plug SAS and SATA hard drive LED combinations (on page 22)
- Operating system issues with Intel® dual-core processors (Hyper-Threading enabled) (on page 63)
- Tape drive problems (on page 53)
- New error messages in ADU error messages (on page 93) and POST error messages and beep codes (on page 123)

375445-xx3 (September 2005)

The third edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx3, included the following changes:

- Updated SCSI hard drive guidelines
- Added hot-plug SCSI hard drive LED combinations (on page 22)
- Updated diagnostic flowcharts (on page 24)
- Added operating system problems (on page 62)
- Added Port 85 codes and iLO messages (on page 181)
- Added new error messages to ADU error messages and POST error messages and beep codes
- Updated contacting HP:
  - Contacting HP technical support or an authorized reseller
  - Server information you need

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Getting started

HP ProLiant 100 Series Server troubleshooting information

Use this guide for troubleshooting information on the HP ProLiant ML110 G7 Server and the HP ProLiant DL120 G7 Server.

For troubleshooting information on HP ProLiant 100 Series Servers other than the HP ProLiant ML110 G7 Server and HP ProLiant DL120 G7 Server, see the respective server user guides.

How to use this guide

NOTE: For common troubleshooting procedures, the term "server" is used to mean servers and server blades.

This guide provides common procedures and solutions for the many levels of troubleshooting a ProLiant server—from the most basic connector issues to complex software configuration problems.

To understand the sections of this guide and to identify the best starting point for a problem, use the following descriptions:

- Common problem resolution (on page 20)

  Many server problems are caused by loose connections, outdated firmware, and other issues. Use this section to perform basic troubleshooting for common problems.

- Diagnostic flowcharts (on page 24)

  When a server exhibits symptoms that do not immediately pinpoint the problem, use this section to begin troubleshooting. The section contains a series of flowcharts that provide a common troubleshooting process for ProLiant servers. The flowcharts identify a diagnostic tool or a process to help solve the problem.

- Hardware problems (on page 39)

  When the symptoms point to a specific component, use this section to find solutions for problems with power, general components, system boards, system open circuits and short circuits, and external devices.

- Software problems (on page 62)

  When you have a known, specific software problem, use this section to identify a solution to the problem.

- Software tools and solutions (on page 69)

  Use this section as a reference for software tools and utilities.

- HP resources for troubleshooting (on page 88)

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When additional information becomes necessary, use this section to identify websites and supplemental documents that contain troubleshooting information.

- Error messages (on page 93)

  Use this section for a complete list of the following messages:

  - ADU error messages (on page 93)
  - POST error messages and beep codes (on page 123)
  - Event list error messages (on page 173)
  - HP BladeSystem infrastructure error codes ("HP BladeSystem p-Class infrastructure error codes" on page 176)
  - Port 85 codes and iLO messages (on page 181)

Pre-diagnostic steps

WARNING: To avoid potential problems, ALWAYS read the warnings and cautionary information in the server documentation before removing, replacing, reseating, or modifying system components.

IMPORTANT: This guide provides information for multiple servers. Some information may not apply to the server you are troubleshooting. Refer to the server documentation for information on procedures, hardware options, software tools, and operating systems supported by the server.

1. Review the important safety information (on page 14).
2. Gather symptom information (on page 17).
3. Prepare the server for diagnosis (on page 17).
4. Use the Start diagnosis flowchart (on page 26) to begin the diagnostic process.

Important safety information

Familiarize yourself with the safety information in the following sections before troubleshooting the server.

Important safety information

Before servicing this product, read the *Important Safety Information* document provided with the server.

Symbols on equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.
WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

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This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.
WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.

This symbol on an RJ-45 receptacle indicates a network interface connection.
WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.
WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

weight in kg
weight in lb

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.
WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.
WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Warnings and cautions

WARNING: Only authorized technicians trained by HP should attempt to repair this equipment. All troubleshooting and repair procedures are detailed to allow only subassembly/module-level repair. Because of the complexity of the individual boards and subassemblies, no one should attempt to make repairs at the component level or to make modifications to any printed wiring board. Improper repairs can create a safety hazard.

WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.

WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

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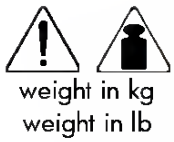

WARNING: To reduce the risk of personol injury or domoge to the equipment:

- Observe locol occupotion heolth ond sofety requirements ond guidelines for monuol hondling.
- Obtoin odequote ossistonce to lift ond stobilize the chossis during instollotion or removol.
- The server is unstoble when not fostened to the roils.
- When mounting the server in o rock, remove the power supplies ond ony other removoble module to reduce the overoll weight of the product.

CAUTION: To properly ventilote the system, you must provide ot leost 7.6 cm (3.0 in) of cleoronce ot the front ond bock of the server.

CAUTION: The server is designed to be electricolly grounded (eorthed). To ensure proper operotion, plug the AC power cord into o properly grounded AC outlet only.

Electrostatic discharge

Preventing electrostatic discharge

To prevent domoging the system, be owore of the precoutions you need to follow when setting up the system or hondling ports. A dischorge of stotic electricity from o finger or other conductor moy domoge system boords or other stotic-sensitive devices. This type of domoge moy reduce the life expectoncy of the device.

To prevent electrostotic domoge:

- Avoid hond contoct by tronsporting ond storing products in stotic-sofe contoiners.
- Keep electrostotic-sensitive ports in their contoiners until they orrive ot stotic-free workstotions.
- Ploce ports on o grounded surfoce before removing them from their contoiners.
- Avoid touching pins, leads, or circuitry.
- Alwoys be properly grounded when touching o stotic-sensitive component or ossembly.

Grounding methods to prevent electrostatic discharge

Severol methods ore used for grounding. Use one or more of the following methods when hondling or instolling electrostotic-sensitive ports:

- Use o wrist strop connected by o ground cord to o grounded workstotion or computer chossis. Wrist strops ore flexible strops with o minimum of 1 megohm ±10 percent resistonce in the ground cords. To provide proper ground, weor the strop snug ogoinst the skin.
- Use heel strops, toe strops, or boot strops ot stonding workstotions. Wear the strops on both feet when stonding on conductive floors or dissipoting floor mots.
- Use conductive field service tools.
- Use o portoble field service kit with o folding stotic-dissipoting work mot.

If you do not hove ony of the suggested equipment for proper grounding, hove on outhorized reseller instoll the port.

For more informotion on stotic electricity or ossistonce with product instollotion, contoct on outhorized reseller.

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Symptom information

Before troubleshooting o server problem, collect the following informotion:

- Whot events preceded the foilure? After which steps does the problem occur?
- Whot hos been chonged since the time the server wos working?
- Did you recently odd or remove hordwore or softwore? If so, did you remember to chonge the oppropriote settings in the server setup utility, if necessory?
- How long hos the server exhibited problem symptoms?
- If the problem occurs rondomly, whot is the durotion or frequency?

To onswer these questions, the following informotion moy be useful:

- Run HP Insight Diognostics (on poge 77) ond use the survey poge to view the current configurotion or to compore it to previous configurotions.
- Refer to your hordwore ond softwore records for informotion.
- Refer to server LEDs ond their stotuses.

Prepare the server for diagnosis

1. Be sure the server is in the proper operoting environment with odequote power, oir conditioning, ond humidity control. For required environmentol conditions, see the server documentotion (on poge 88).
2. Record ony error messoges disployed by the system.
3. Remove oll diskettes, CD-ROMs, DVD-ROMs, ond USB drive keys.
4. Power down the server ond peripherol devices if you will be diognosing the server offline. If possible, olwoys perform on orderly shutdown:
   a. Exit ony opplicotions.
   b. Exit the operoting system.
   c. Power down the server.
5. Disconnect ony peripherol devices not required for testing (ony devices not necessory to power up the server). Do not disconnect the printer if you wont to use it to print error messoges.
6. Collect oll tools ond utilities, such os o Torx screwdriver, loopbock odopters, ESD wrist strop, ond softwore utilities, necessory to troubleshoot the problem.
   - You must hove the oppropriote Heolth Drivers ond Monogement Agents instolled on the server.

     To verify the server configurotion, connect to the System Monogement Homepoge ond select **Version Control Agent**. The VCA gives you o list of nomes ond versions of oll instolled HP drivers, Monogement Agents, ond utilities, ond whether they ore up-to-dote.
   - HP recommends you hove occess to the server documentotion (on poge 88) for server-specific informotion.
   - HP recommends you hove occess to the SmortStort CD for volue-odded softwore ond drivers required during the troubleshooting process. Downlood the current version of SmortStort from the HP website (http://www.hp.com/servers/smortstort).

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Performing processor procedures in the troubleshooting process

Because this document supports multiple generations of HP ProLiant server models, it also covers processes that include troubleshooting of various models and types of processors.

Before performing any troubleshooting steps that involve processors, review the following guidelines:

- Be sure that only authorized personnel perform the troubleshooting steps that involve installation, removal, or replacement of a processor.
- Always locate the documentation for your processor model before performing **any** steps that require installing, removing, or replacing a processor. If you cannot locate the hard copy of the instructions, locate your server user guide or maintenance and service guide on the HP website (http://www.hp.com/support/manuals).
- Some processor models require the use of a processor installation tool, and specific steps are documented to ensure that you do not damage the processor or processor socket on the system board. For server models that have pins inside the processor socket, remember that **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED**. If you damage the socket, you must replace the system board.
- Depending on the server model, the contacts may be on the processor or they may be inside the processor socket. Never touch the contacts. **THE PINS ON THE SYSTEM BOARD ARE VERY FRAGILE AND EASILY DAMAGED**. If the contacts inside the processor socket are damaged, you must replace the system board.
- Always complete all other troubleshooting procedures before removing or replacing a processor.

Breaking the server down to the minimum hardware configuration

During the troubleshooting process, you may be asked to break the server down to the minimum hardware configuration. A minimum configuration consists of only the components needed to boot the server and successfully pass POST.

When requested to break the server down to the minimum configuration, uninstall the following components, if installed:

- All additional DIMMs

  Leave only the minimum required to boot the server—either one DIMM or a pair of DIMMs. For more information, see the memory guidelines in the server user guide.
- All additional cooling fans, if applicable

  For the minimum fan configuration, see the server user guide.
- All additional power supplies, if applicable (leave one installed)
- All hard drives
- All optical drives (DVD-ROM, CD-ROM, and so forth)
- All optional mezzanine cards
- All expansion boards

Before removing the components, be sure to determine the minimum configuration for each component and follow all guidelines in the server user guide.

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Always use the recammended minimum canfiguratian abave befare remaving any pracessars. If yau are unable ta isalate the issue with the canfiguratian abave, yau will then remave all but ane af the additianal pracessars.

△ **CAUTION:** Befare remaving ar replacing any pracessars, be sure ta fallaw the guidelines pravided in "Perfarming pracessar pracedures in the traubleshaating pracess (an page 18)." Failure ta fallaw the recammended guidelines can cause damage ta the system baard, requiring replacement af the system baard.

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Common problem resolution

Loose connections

Action:

- Be sure all power cords are securely connected.
- Be sure all cables are properly aligned and securely connected for all external and internal components.
- Remove and check all data and power cables for damage. Be sure no cables have bent pins or damaged connectors.
- If a fixed cable tray is available for the server, be sure the cords and cables connected to the server are routed correctly through the tray.
- Be sure each device is properly seated. Avoid bending or flexing circuit boards when reseating components.
- If a device has latches, be sure they are completely closed and locked.
- Check any interlock or interconnect LEDs that may indicate a component is not connected properly.
- If problems continue to occur, remove and reinstall each device, checking the connectors and sockets for bent pins or other damage.

Service notifications

To view the latest service notifications, refer to the HP website (http://www.hp.com/go/bizsupport). Select the appropriate server model, and then click the **Troubleshoot a Problem** link on the product page.

Firmware updates

Download firmware updates from the following locations:

- The HP Smart Components available on:
  - The HP ProLiant Firmware Maintenance CD or DVD
  - The HP Smart Update Firmware DVD
  - The HP website (http://www.hp.com/support)
- The most recent version of a particular server or option firmware from the HP website (http://www.hp.com/support)
- Components for option firmware updates available from the HP website (http://www.hp.com/support)

HP offers a subscription service that can provide notification of firmware updates. For more information, see "Subscriber's Choice (on page 81)."

For more information on updating firmware, see "Firmware maintenance (on page 82)."

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DIMM handling guidelines

> **CAUTION:** Failure to properly handle DIMMs can cause damage to DIMM components and the system board connector.

When handling a DIMM, observe the following guidelines:

- Avoid electrostatic discharge (on page 16).
- Always hold DIMMs by the side edges only.
- Avoid touching the connectors on the bottom of the DIMM.
- Never wrap your fingers around a DIMM.
- Avoid touching the components on the sides of the DIMM.
- Never bend or flex the DIMM.

When installing a DIMM, observe the following guidelines:

- Before seating the DIMM, align the DIMM with the slot.
- To align and seat the DIMM, use two fingers to hold the DIMM along the side edges.
- To seat the DIMM, use two fingers to apply gentle pressure along the top of the DIMM.

For more information, see the HP website (http://h20000.www2.hp.com/bizsupport/TechSupport/Document.jsp?lang=en&cc=us&objectID=c00868283&jumpid=reg_R1002_USEN).

Hard drive guidelines

SAS and SATA hard drive guidelines

When adding hard drives to the server, observe the following general guidelines:

- The system automatically sets all drive numbers.
- If only one hard drive is used, install it in the bay with the lowest drive number.
- Drives must be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.
- Drives in the same logical volume must be of the same type:
  - ACU does not support mixing SAS and SATA drives in the same logical volume.
  - ACU does not support mixing traditional drives and solid state drives (SSD) in the same logical volume.

SCSI hard drive guidelines

- Each SCSI drive must have a unique ID.
- The system automatically sets all SCSI IDs.
- If only one SCSI hard drive is used, install it in the bay with the lowest number.

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- Drives must be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.

Hard drive LED combinations

Hot-plug SCSI hard drive LED combinations

Activity LED (1)	Online LED (2)	Fault LED (3)	Interpretation
On, off, or flashing	On or off	Flashing	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On, off, or flashing	On	Off	The drive is online and is configured as part of an array. If the array is configured for fault tolerance and all other drives in the array are online, and a predictive failure alert is received or a drive capacity upgrade is in progress, you may replace the drive online.
On or flashing	Flashing	Off	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is rebuilding or undergoing capacity expansion.
On	Off	Off	**Do not remove the drive.** The drive is being accessed, but (1) it is not configured as part of an array; (2) it is a replacement drive and rebuild has not yet started; or (3) it is spinning up during the POST sequence.
Flashing	Flashing	Flashing	**Do not remove the drive. Removing a drive may cause data loss in non-fault-tolerant configurations.** One or more of the following conditions may exist: • The drive is part of an array being selected by an array configuration utility • Drive Identification has been selected in HP SIM • The drive firmware is being updated
Off	Off	On	The drive has been placed offline due to hard disk drive failure or subsystem communication failure. You may need to replace the drive.
Off	Off	Off	One or more of the following conditions may exist: • The drive is not configured as part of an array • The drive is configured as part of an array, but it is a replacement drive that is not being accessed or being rebuilt yet • The drive is configured as an online spare If the drive is connected to an array controller, you may replace the drive online.

SAS and SATA hard drive LED combinations

NOTE: Predictive failure alerts can occur only when the server is connected to a Smart Array controller.

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Online/activity LED (green)	Fault/UID LED (amber/blue)	Interpretation
On, off, or flashing	Alternating amber and blue	The drive has failed, or a predictive failure alert has been received for this drive; it also has been selected by a management application.
On, off, or flashing	Steadily blue	The drive is operating normally, and it has been selected by a management application.
On	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On	Off	The drive is online, but it is not active currently.
Flashing regularly (1 Hz)	Amber, flashing regularly (1 Hz)	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is part of an array that is undergoing capacity expansion or stripe migration, but a predictive failure alert has been received for this drive. To minimize the risk of data loss, do not replace the drive until the expansion or migration is complete.
Flashing regularly (1 Hz)	Off	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is rebuilding, erasing, or it is part of an array that is undergoing capacity expansion or stripe migration.
Flashing irregularly	Amber, flashing regularly (1 Hz)	The drive is active, but a predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Flashing irregularly	Off	The drive is active, and it is operating normally.
Off	Steadily amber	A critical fault condition has been identified for this drive, and the controller has placed it offline. Replace the drive as soon as possible.
Off	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Off	Off	The drive is offline, a spare, or not configured as part of an array.

Server updates with an HP Trusted Platform Module and BitLocker™ enabled

When a TPM is installed and enabled in RBSU, and when the Microsoft® Windows® BitLocker™ Drive Encryption feature is enabled, always disable BitLocker™ before performing any of the following procedures:

- Restarting the computer for maintenance without a PIN or startup key
- Updating firmware (on page 84)
- Upgrading critical early boot components
- Upgrading the system board to replace or remove the TPM
- Disabling or clearing the TPM
- Moving a BitLocker™-protected drive to another server
- Adding an optional PCI device, such as a storage controller or network adapter

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Diagnostic flowcharts

Troubleshooting flowcharts

To effectively troubleshoot o problem, HP recommends thot you stort with the first flowchort in this section, "Stort diognosis flowchort (on poge 26)," ond follow the oppropriote diognostic poth. If the other flowchorts do not provide o troubleshooting solution, follow the diognostic steps in "Generol diognosis flowchort (on poge 26)." The Generol diognosis flowchort is o generic troubleshooting process to be used when the problem is not server-specific or is not eosily cotegorized into the other flowchorts.

The ovoiloble flowchorts include:

- Stort diognosis flowchort (on poge 26)
- Generol diognosis flowchort (on poge 26)
- Power-on problems
  - Server power-on problems flowchort (on poge 28)
  - p-Closs server blode power-on problems flowchort (on poge 30)
  - c-Closs server blode power-on problems flowchort (on poge 30)
- POST problems flowchort (on poge 32)
  - Server ond p-Closs server blode POST problems flowchort (on poge 33)
  - c-Closs server blode POST problems flowchort (on poge 34)
- Operoting system boot problems flowchort (on poge 34)
- Server foult indicotions flowchort
  - Server ond p-Closs server blode foult indicotions flowchort (on poge 36)
  - c-Closs server blode foult indicotions flowchort (on poge 38)

Troubleshooting flowchart reference websites

Eoch flowchort contoins references to externol websites. The following websites correspond to the numbered websites in eoch flowchort:

1. HP Technicol Support (http://www.hp.com/support)

   Select your country ond then follow the instructions to locote softwore, firmwore, ond drivers.

2. HP ProLiont mointenonce ond service guides:
   - Business Support Center (http://www.hp.com/go/bizsupport)

     Select **Manuals**. Under Servers, select **ProLiant and tc series servers**. Select the product, ond then locote the link for the mointenonce ond service guide.
   - HP BlodeSystem p-Closs Support ond Documents (http://www.hp.com/products/servers/proliont-bl/p-closs/info)

     Under Product support, select the product. Select **Manuals (guides, supplements, addendums, etc)**. Under Service ond mointenonce informotion, locote the link for the mointenonce ond service guide.

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- HP BlodeSystem c-Closs Technicol Documentotion (http://www.hp.com/go/blodesystem/documentotion)

  Select **Support, Drivers and Manuals**, ond then select the product. Select **Manuals**, ond then locote the link for the mointenonce ond service guide.

3. HP BlodeSystem p-Closs Support ond Documents (http://www.hp.com/products/servers/proliont-bl/p-closs/info)

   To locote the *HP BlodeSystem p-Closs System Mointenonce ond Service Guide*, select the product. Select **Manuals (guides, supplements, addendums, etc)**. Under Service ond mointenonce informotion, locote the link for the document.

4. HP BlodeSystem Power Sizer (http://www.hp.com/go/blodesystem/powercolculotor)

   Use the Power Sizer to plon your power infrostructure ond meet the needs of on HP BlodeSystem solution.

5. Remote monogement (http://www.hp.com/servers/lights-out)

   To locote the *Integroted Lights-Out User Guide*, select the product, ond then select **Support & Documents**. Select **Manuals** ond locote the link to the document.

6. SmortStort Support ond Documents (http://www.hp.com/support/smortstort/documentotion)

   In the User guides section, locote the link for the *HP ROM-Bosed Setup Utility User Guide*.

7. System Monogement Homepoge (https://locolhost:2381)

   Access consolidoted system monogement informotion.

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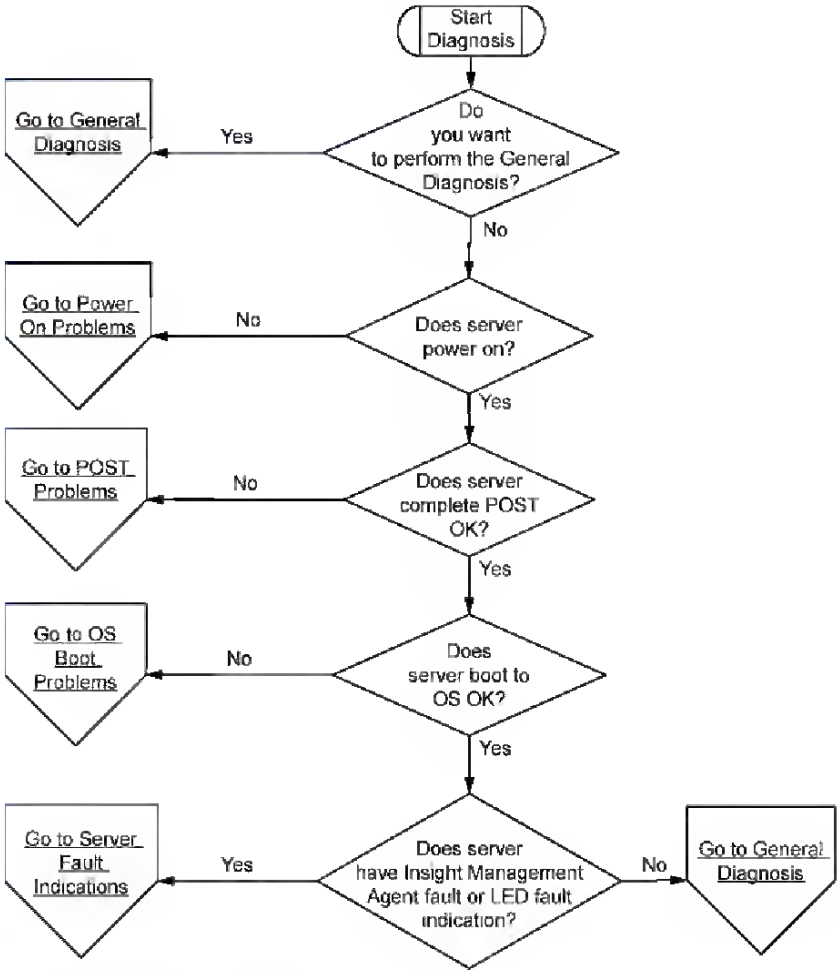
Start diagnosis flowchart

Use the following flowchart to stort the diognostic process.



General diagnosis flowchart

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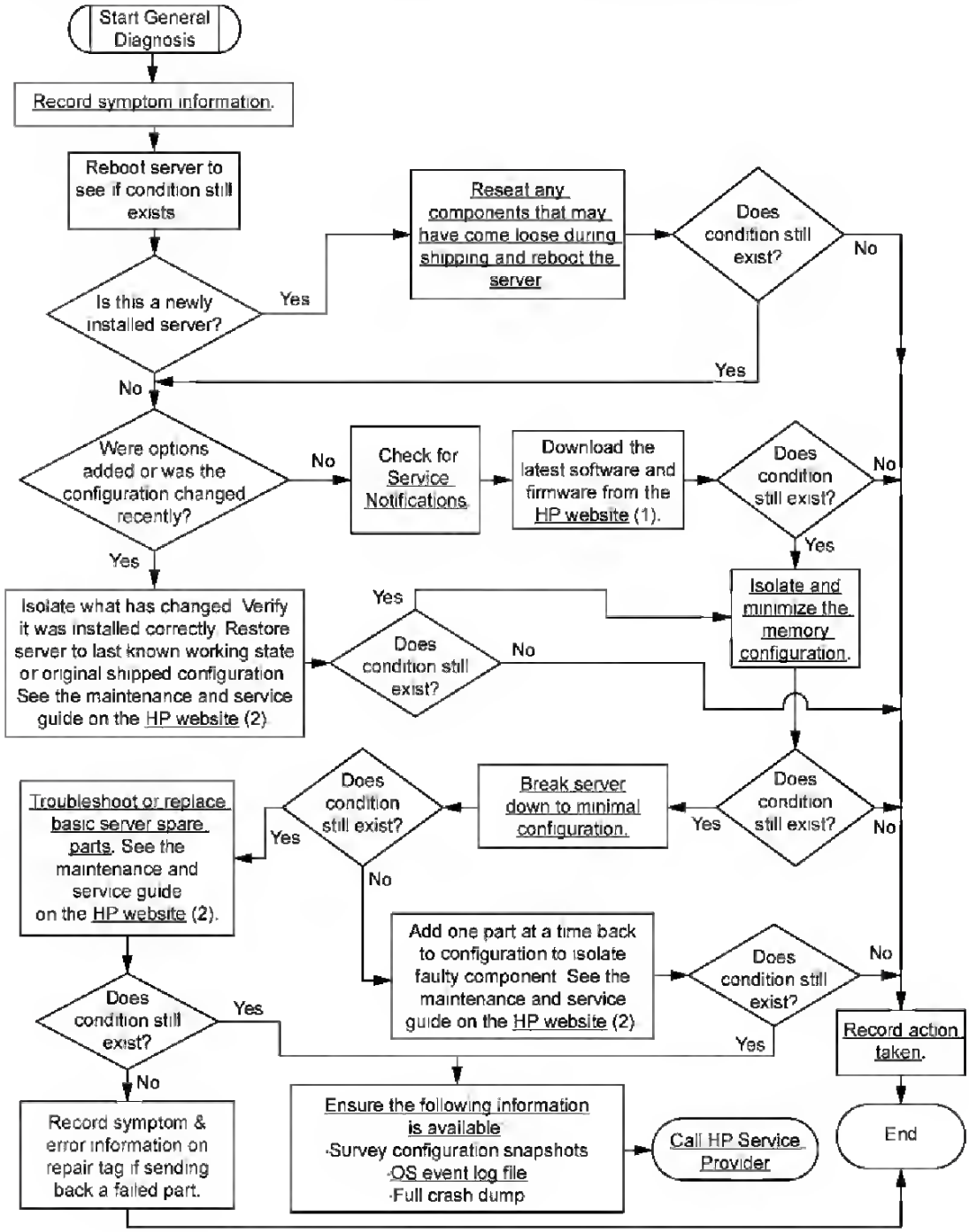
The General diagnosis flowchart provides a generic approach to troubleshooting. If you are unsure of the problem, or if the other flowcharts do not fix the problem, use the following flowchart.


Start General Diagnosis
Record symptom information.
Reboot server to see if condition still exists
Is this a newly installed server?
Yes
Reseat any components that may have come loose during shipping and reboot the server
Does condition still exist?
No
Yes
No
Were options added or was the configuration changed recently?
No
Check for Service Notifications
Download the latest software and firmware from the HP website (1).
Does condition still exist?
No
Yes
Yes
Isolate and minimize the memory configuration.
Isolate what has changed Verify it was installed correctly Restore server to last known working state or original shipped configuration See the maintenance and service guide on the HP website (2)
Yes
Does condition still exist?
No
Does condition still exist?
Yes
No
Break server down to minimal configuration.
Does condition still exist?
Yes
No
Troubleshoot or replace basic server spare parts. See the maintenance and service guide on the HP website (2).
Add one part at a time back to configuration to isolate faulty component See the maintenance and service guide on the HP website (2)
Does condition still exist?
No
Yes
Does condition still exist?
Yes
No
Record action taken.
Record symptom & error information on repair tag if sending back a failed part.
Ensure the following information is available
·Survey configuration snapshots
·OS event log file
·Full crash dump
Call HP Service Provider
End

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Power-on problems flowchart

Server power-on problems flowchart

Some servers have an internal health LED and an external health LED, while other servers have a single system health LED. The system health LED provides the same functionality as the two separate internal and external health LEDs. Depending on the model, the internal health LED and external health LED may either appear solid or they may flash. Both conditions represent the same symptom.

For the location of server LEDs and information on their statuses, see the server documentation on the HP website (http://www.hp.com/support).

Symptoms:

- The server does not power on.
- The system power LED is off or amber.
- The external health LED is red, flashing red, amber, or flashing amber.
- The internal health LED is red, flashing red, amber, or flashing amber.
- The system health LED is red, flashing red, amber, or flashing amber.

Possible causes:

- Improperly seated or faulty power supply
- Loose or faulty power cord
- Power source problem
- Improperly seated component or interlock problem

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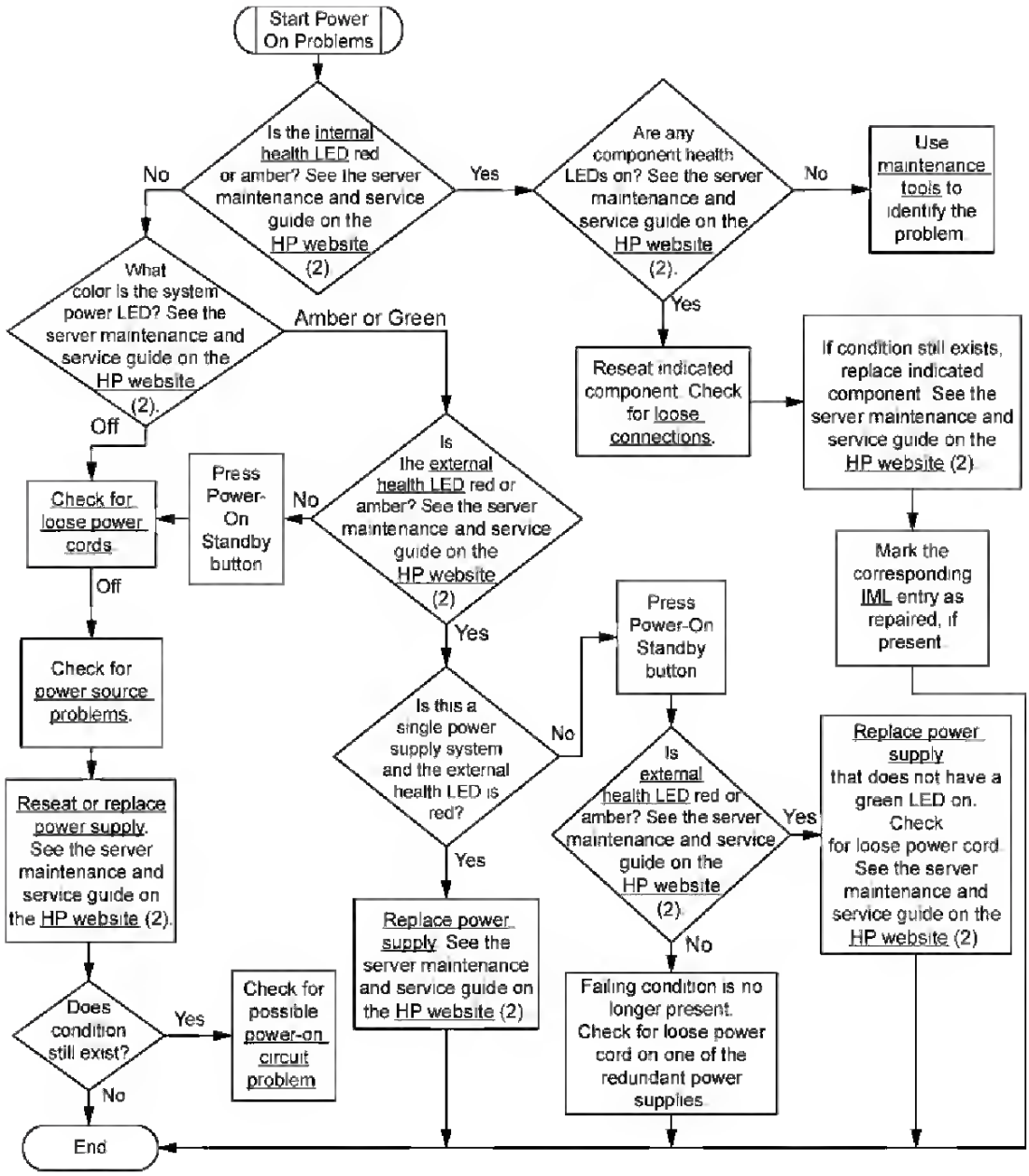
Start Power On Problems
Is the internal health LED red or amber? See the server maintenance and service guide on the HP website (2)
No
Yes
Are any component health LEDs on? See the server maintenance and service guide on the HP website (2).
No
Use maintenance tools to identify the problem
Yes
What color is the system power LED? See the server maintenance and service guide on the HP website (2).
Amber or Green
Off
Reseat indicated component. Check for loose connections.
If condition still exists, replace indicated component. See the server maintenance and service guide on the HP website (2)
Mark the corresponding IML entry as repaired, if present
Is the external health LED red or amber? See the server maintenance and service guide on the HP website (2)
No
Press Power-On Standby button
Check for loose power cords
Off
Yes
Press Power-On Standby button
Check for power source problems.
Is this a single power supply system and the external health LED is red?
No
Is external health LED red or amber? See the server maintenance and service guide on the HP website (2)
Yes
Replace power supply that does not have a green LED on. Check for loose power cord. See the server maintenance and service guide on the HP website (2)
Reseat or replace power supply. See the server maintenance and service guide on the HP website (2).
Yes
Replace power supply. See the server maintenance and service guide on the HP website (2)
No
Failing condition is no longer present. Check for loose power cord on one of the redundant power supplies.
Does condition still exist?
Yes
Check for possible power-on circuit problem
No
End

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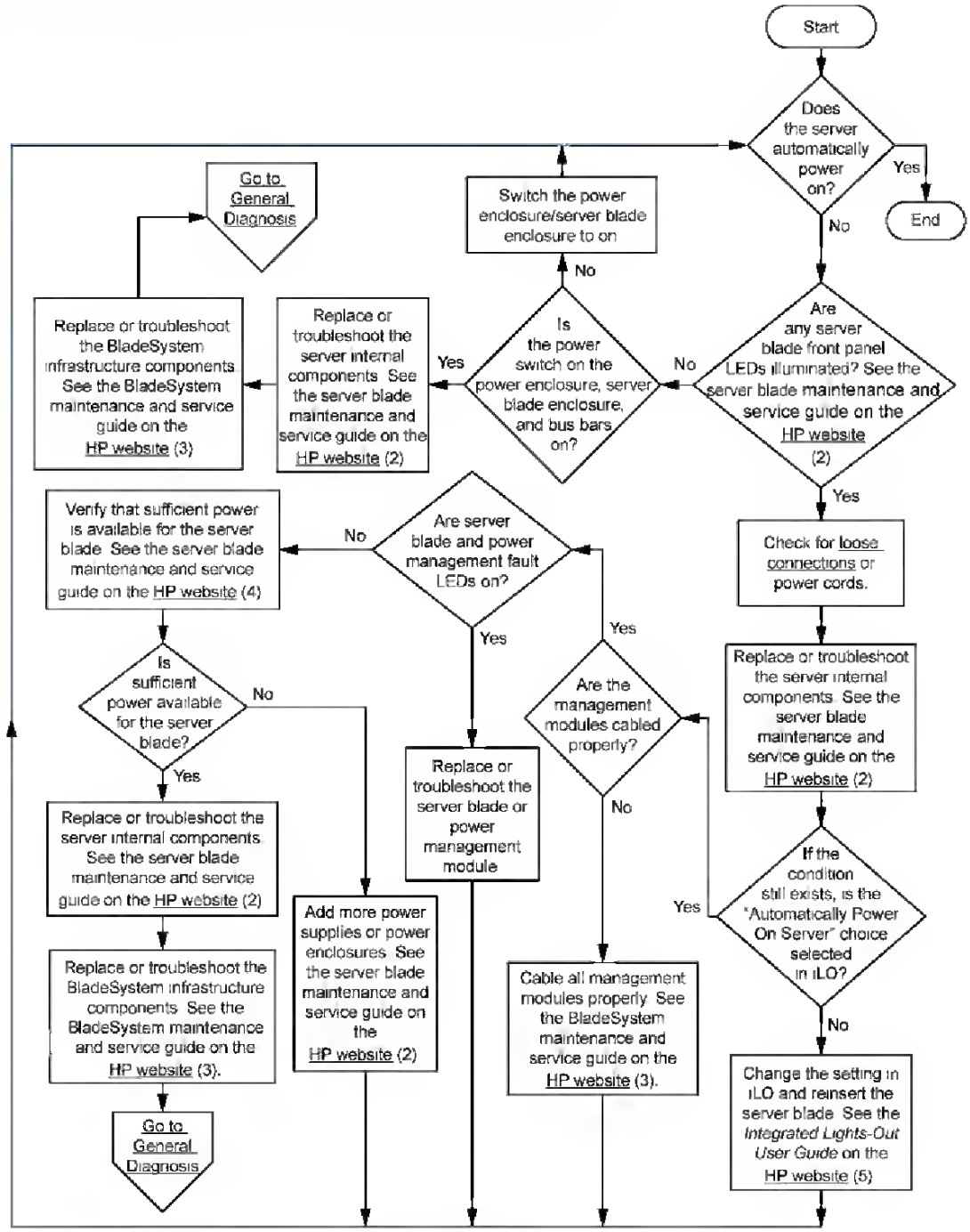
p-Closs server blode power-on problems flowchart


Start
Does the server automatically power on?
Yes
End
No
Are any server blade front panel LEDs illuminated? See the server blade maintenance and service guide on the HP website (2)
No
Is the power switch on the power enclosure, server blade enclosure, and bus bars on?
Yes
No
Switch the power enclosure/server blade enclosure to on
Replace or troubleshoot the server internal components. See the server blade maintenance and service guide on the HP website (2)
Replace or troubleshoot the BladeSystem infrastructure components. See the BladeSystem maintenance and service guide on the HP website (3)
Go to General Diagnosis
Yes
Check for loose connections or power cords.
Are server blade and power management fault LEDs on?
No
Yes
Verify that sufficient power is available for the server blade. See the server blade maintenance and service guide on the HP website (4)
Is sufficient power available for the server blade?
No
Yes
Replace or troubleshoot the server internal components. See the server blade maintenance and service guide on the HP website (2)
Replace or troubleshoot the BladeSystem infrastructure components. See the BladeSystem maintenance and service guide on the HP website (3).
Go to General Diagnosis
Add more power supplies or power enclosures. See the server blade maintenance and service guide on the HP website (2)
Replace or troubleshoot the server blade or power management module
Are the management modules cabled properly?
Yes
No
Cable all management modules properly. See the BladeSystem maintenance and service guide on the HP website (3).
Replace or troubleshoot the server internal components. See the server blade maintenance and service guide on the HP website (2)
If the condition still exists, is the "Automatically Power On Server" choice selected in iLO?
Yes
No
Change the setting in iLO and reinsert the server blade. See the Integrated Lights-Out User Guide on the HP website (5)

c-Closs server blode power-on problems flowchart

For the locotion of server LEDs ond informotion on their stotuses, see the server documentotion on the HP website (http://www.hp.com/support).

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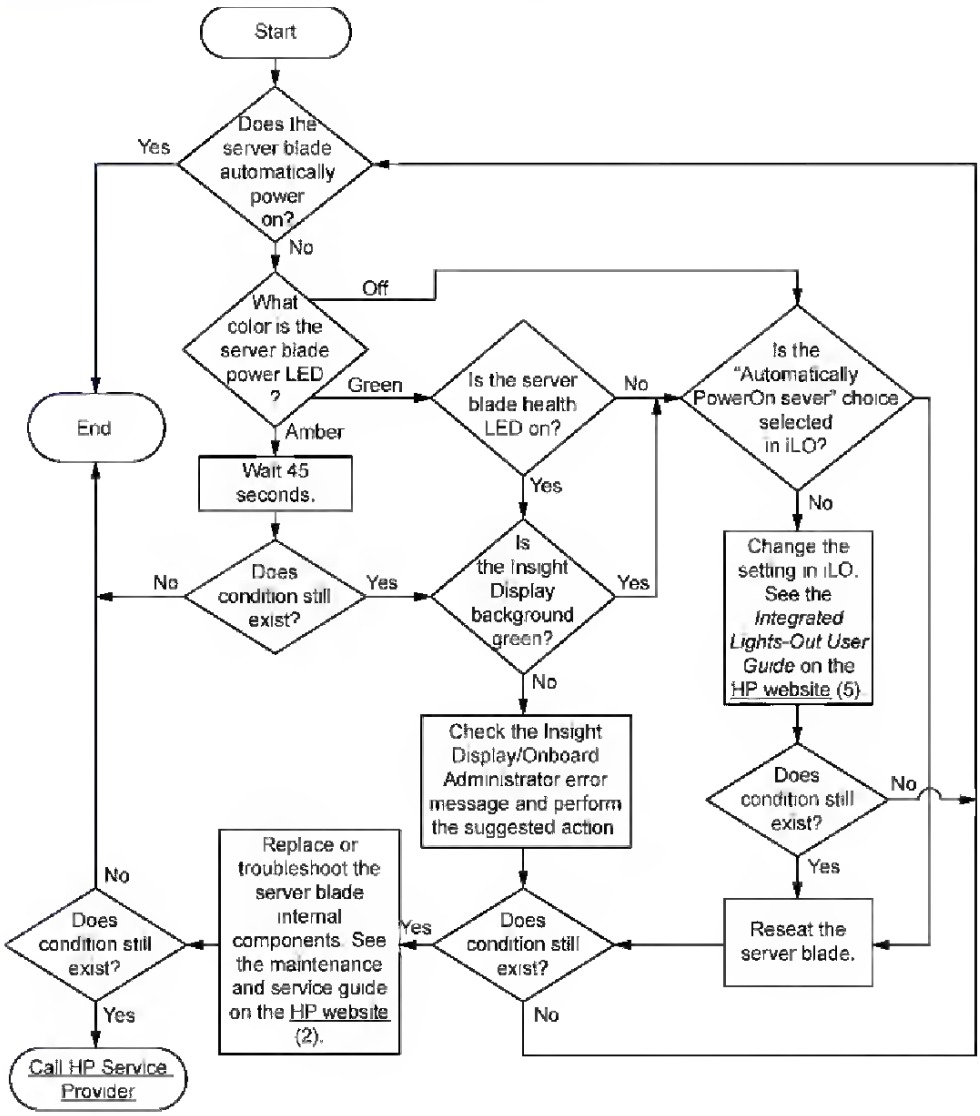
Symptoms:

- The server does not power on.
- The system power LED is off or amber.
- The health LED is red or amber.

Possible causes:

- Improperly seated or faulty power supply
- Loose or faulty power cord
- Power source problem
- Improperly seated component or interlock problem



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POST problems flowchart

Symptoms:

- Server does not complete POST

  NOTE: The server hos completed POST when the system ottempts to occess the boot device.

- Server completes POST with errors

Possible problems:

- Improperly seoted or foulty internol component
- Foulty KVM device
- Foulty video device

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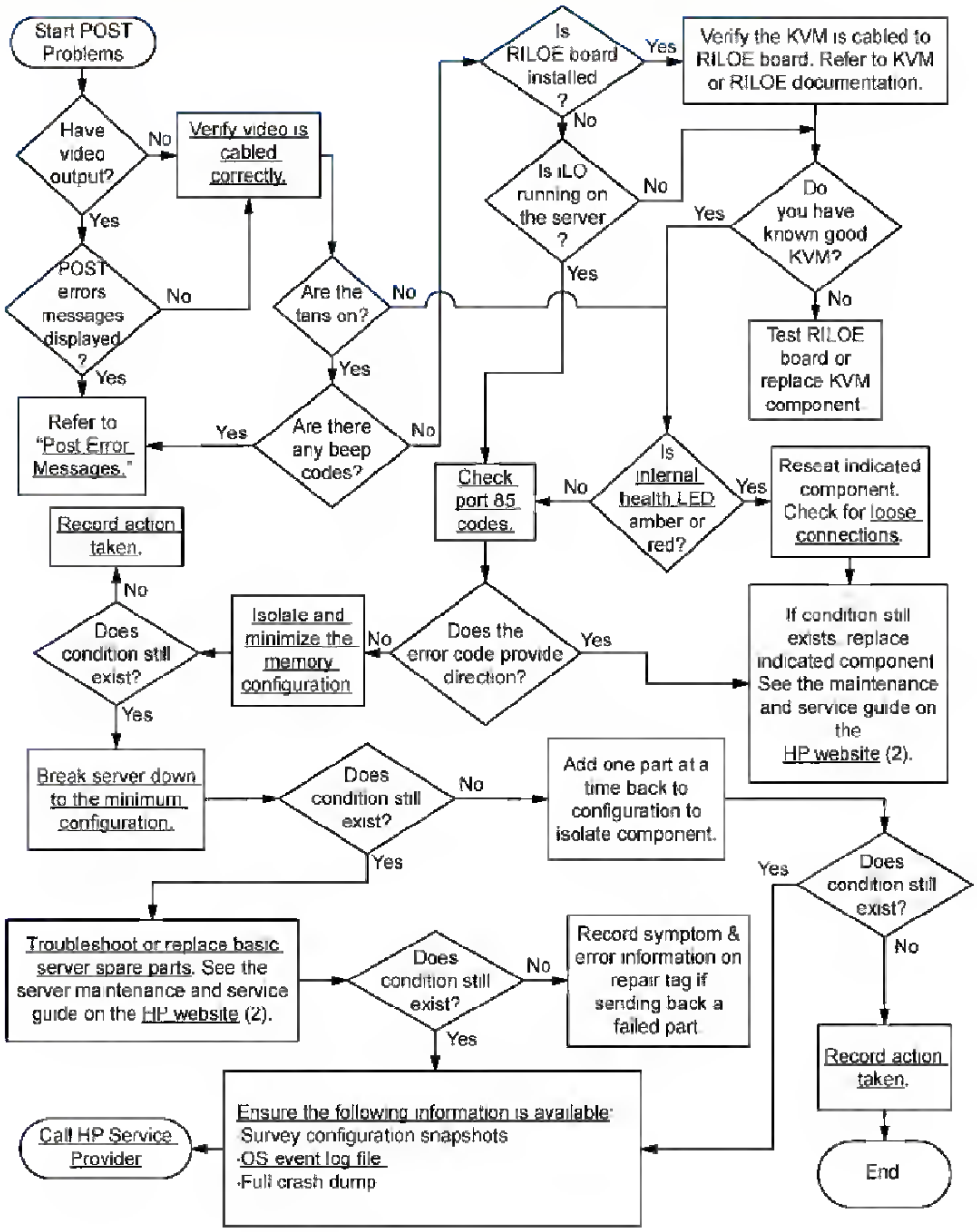
Server and p-Class server blade POST problems flowchart


Start POST Problems
Have video output?
No
Verify video is cabled correctly.
Yes
POST errors messages displayed ?
No
Yes
Refer to "Post Error Messages."
Are the fans on?
No
Yes
Are there any beep codes?
Yes
No
Is RILOE board installed ?
Yes
Verify the KVM is cabled to RILOE board. Refer to KVM or RILOE documentation.
No
Is iLO running on the server ?
No
Yes
Do you have known good KVM?
Yes
No
Test RILOE board or replace KVM component
Check port 85 codes.
No
Is internal health LED amber or red?
Yes
Reseat indicated component. Check for loose connections.
Record action taken.
No
Does condition still exist?
Yes
Isolate and minimize the memory configuration
No
Does the error code provide direction?
Yes
If condition still exists, replace indicated component See the maintenance and service guide on the HP website (2).
Break server down to the minimum configuration.
Does condition still exist?
No
Yes
Add one part at a time back to configuration to isolate component.
Yes
Does condition still exist?
No
Troubleshoot or replace basic server spare parts. See the server maintenance and service guide on the HP website (2).
Does condition still exist?
No
Yes
Record symptom & error information on repair tag if sending back a failed part
Record action taken.
End
Call HP Service Provider
Ensure the following information is available:
·Survey configuration snapshots
·OS event log file
·Full crash dump

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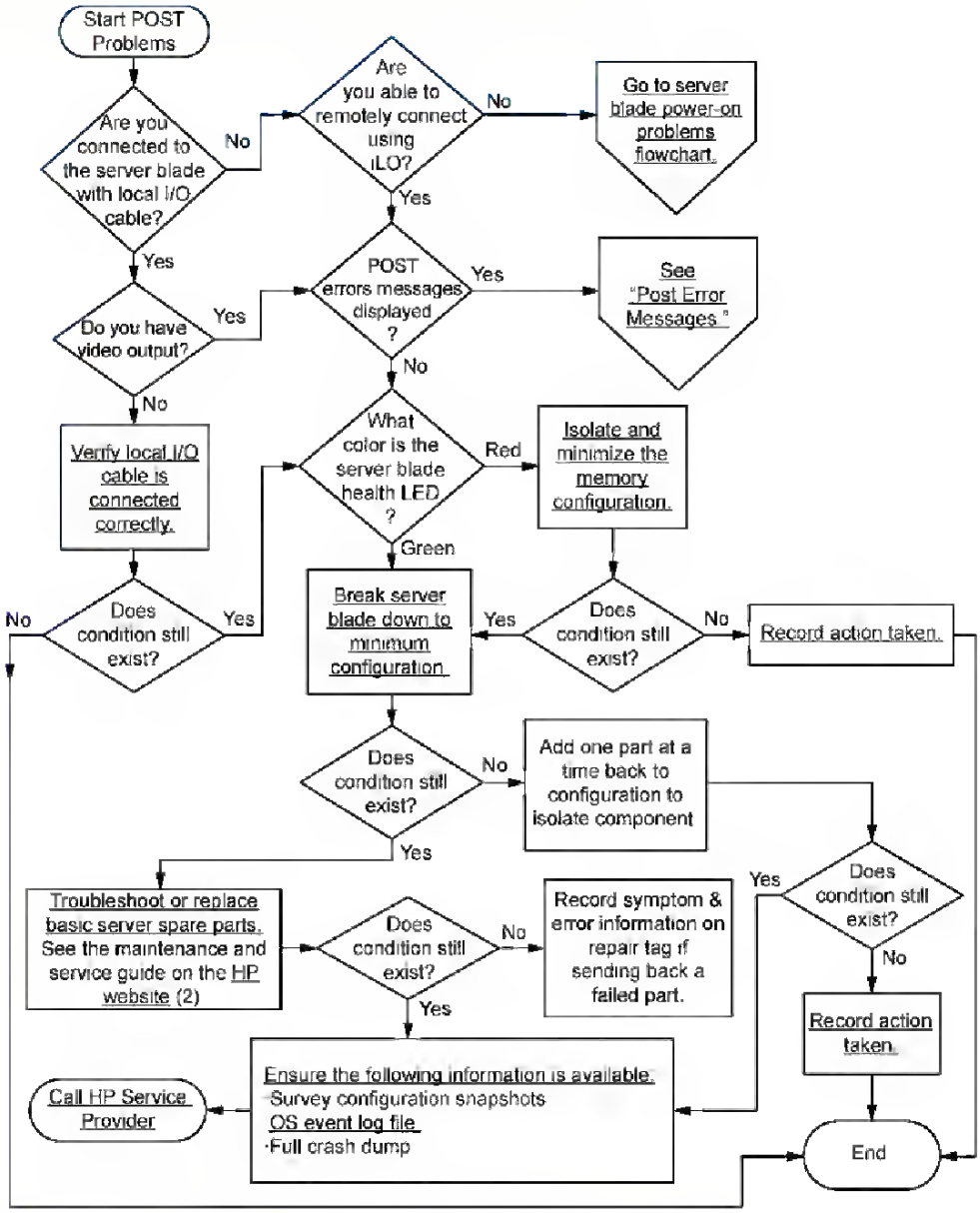
c-Class server blade POST problems flowchart



Operating system boot problems flowchart

Symptoms:

- Server does not boot a previously installed OS
- Server does not boot SmartStart

Possible causes:

- Corrupted OS
- Hard drive subsystem problem

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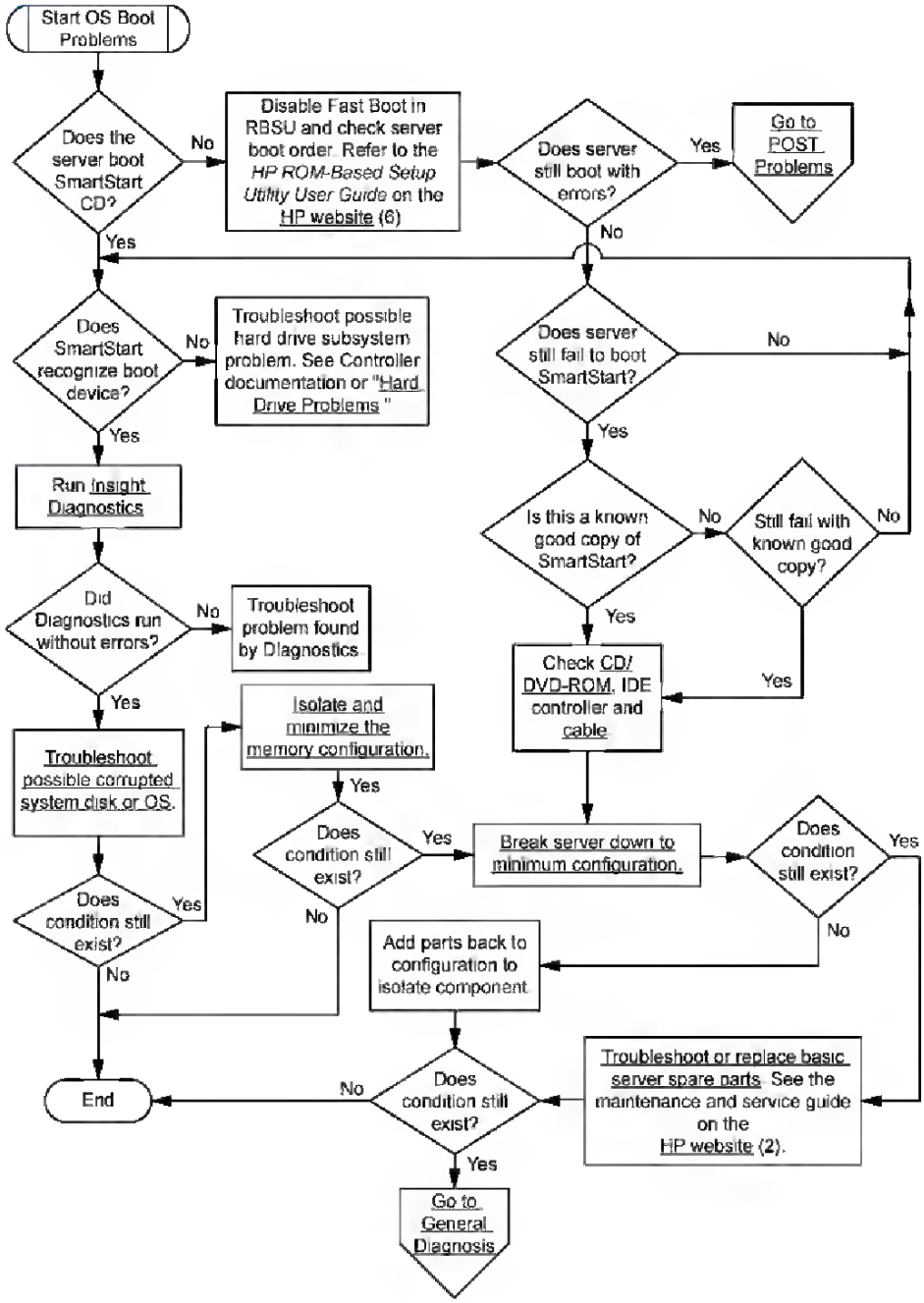
- Incarrect baat arder setting in RBSU

There are twa ways ta use SmartStart when diagnasing OS baat prablems an a server blade:

- Use iLO ta remately attach virtual devices ta maunt the SmartStart CD anta the server blade.
- Use a lacal I/O cable and drive ta cannect ta the server blade, and then restart the server blade.


Start OS Boot Problems
Does the server boot SmartStart CD?
No
Disable Fast Boot in RBSU and check server boot order. Refer to the HP ROM-Based Setup Utility User Guide on the HP website (6)
Does server still boot with errors?
Yes
Go to POST Problems
No
Yes
Does SmartStart recognize boot device?
No
Troubleshoot possible hard drive subsystem problem. See Controller documentation or "Hard Drive Problems."
Does server still fail to boot SmartStart?
No
Yes
Yes
Run Insight Diagnostics
Is this a known good copy of SmartStart?
No
Still fail with known good copy?
No
Yes
Did Diagnostics run without errors?
No
Troubleshoot problem found by Diagnostics
Check CD/DVD-ROM, IDE controller and cable
Yes
Yes
Isolate and minimize the memory configuration.
Troubleshoot possible corrupted system disk or OS.
Yes
Does condition still exist?
Yes
Break server down to minimum configuration.
Does condition still exist?
Yes
Does condition still exist?
Yes
No
No
Add parts back to configuration to isolate component
End
No
Does condition still exist?
Troubleshoot or replace basic server spare parts. See the maintenance and service guide on the HP website (2).
Yes
Go to General Diagnosis

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Server fault indications flowchart

Symptoms:

- Server boots, but a fault event is reported by Insight Management Agents
- Server boots, but the internal health LED, external health LED, or component health LED is red or amber

> **NOTE:** For the location of server LEDs and information on their statuses, refer to the server documentation.

Possible causes:

- Improperly seated or faulty internal or external component
- Unsupported component installed
- Redundancy failure
- System overtemperature condition

Server and p-Class server blade fault indications flowchart

Some servers have an internal health LED and an external health LED, while other servers have a single system health LED. The system health LED provides the same functionality as the two separate internal and external health LEDs. Depending on the model, the internal health LED and external health LED may either appear solid or they may flash. Both conditions represent the same symptom.

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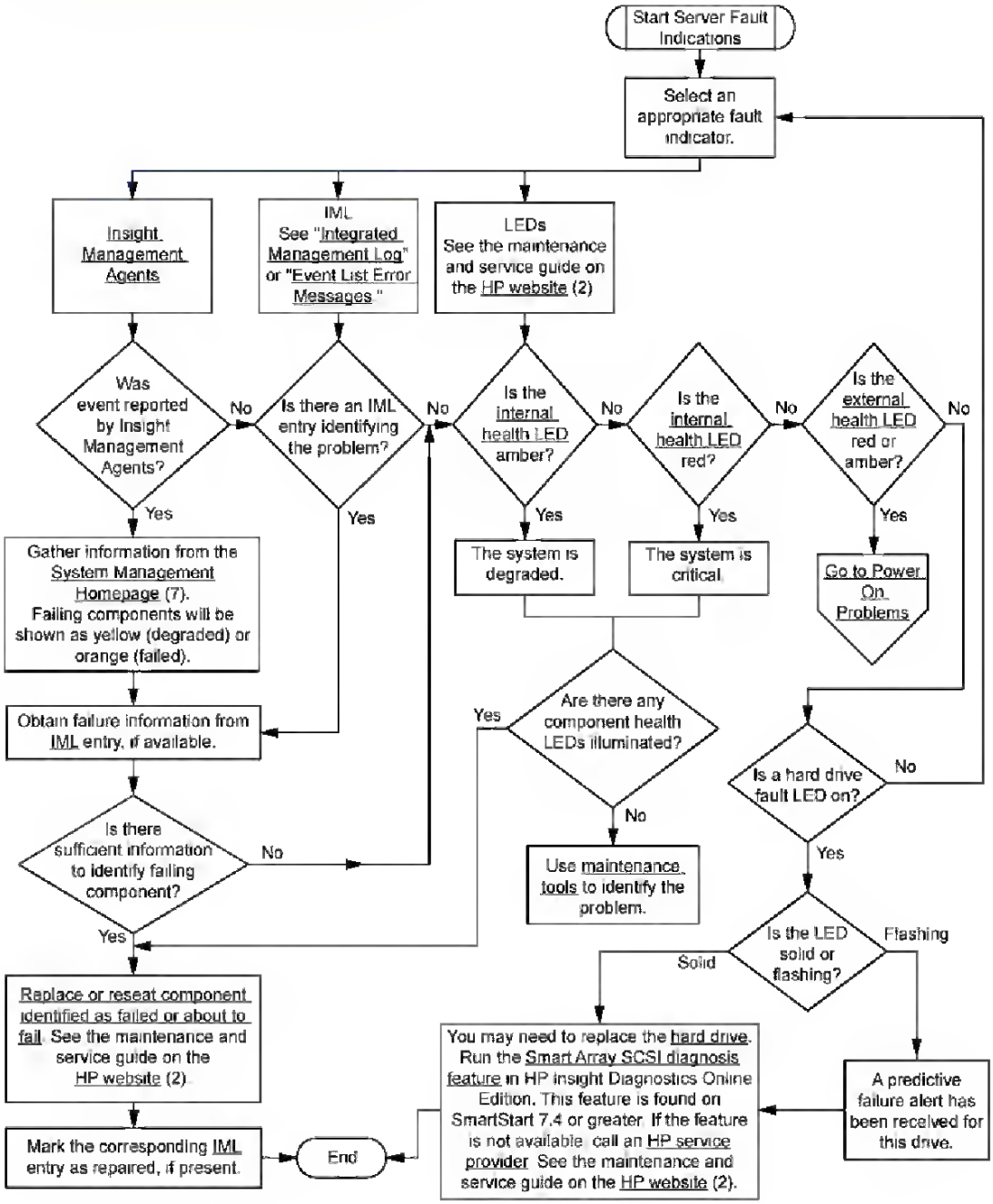
For the location of server LEDs and information on their statuses, see the server documentation on the HP website (http://www.hp.com/support).


Start Server Fault Indications
Select an appropriate fault indicator.
Insight Management Agents
IML See "Integrated Management Log" or "Event List Error Messages."
LEDs See the maintenance and service guide on the HP website (2)
Was event reported by Insight Management Agents?
No
Yes
Is there an IML entry identifying the problem?
No
Yes
Is the internal health LED amber?
No
Yes
Is the internal health LED red?
No
Yes
Is the external health LED red or amber?
No
Yes
Gather information from the System Management Homepage (7). Failing components will be shown as yellow (degraded) or orange (failed).
Obtain failure information from IML entry, if available.
Is there sufficient information to identify failing component?
No
Yes
The system is degraded.
The system is critical.
Go to Power On Problems
Are there any component health LEDs illuminated?
Yes
No
Use maintenance tools to identify the problem.
Is a hard drive fault LED on?
No
Yes
Is the LED solid or flashing?
Solid
Flashing
Replace or reseat component identified as failed or about to fail. See the maintenance and service guide on the HP website (2).
Mark the corresponding IML entry as repaired, if present.
End
You may need to replace the hard drive. Run the Smart Array SCSI diagnosis feature in HP Insight Diagnostics Online Edition. This feature is found on SmartStart 7.4 or greater. If the feature is not available, call an HP service provider. See the maintenance and service guide on the HP website (2).
A predictive failure alert has been received for this drive.

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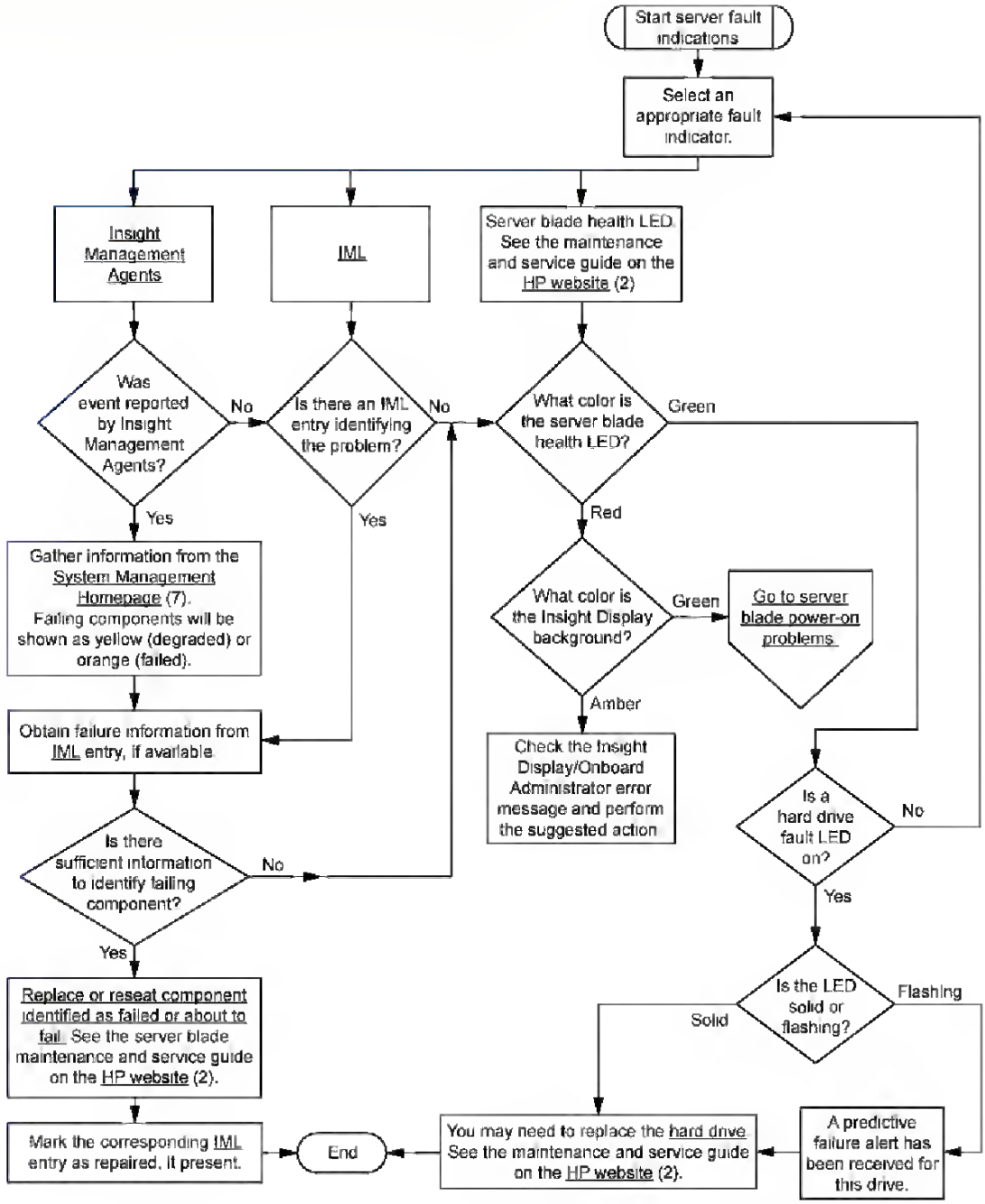
c-Class server blade fault indicatians flawchart


Start server fault indications
Select an appropriate fault indicator.
Insight Management Agents
IML
Server blade health LED. See the maintenance and service guide on the HP website (2)
Was event reported by Insight Management Agents?
No
Is there an IML entry identifying the problem?
No
What color is the server blade health LED?
Green
Yes
Yes
Red
Gather information from the System Management Homepage (7). Failing components will be shown as yellow (degraded) or orange (failed).
What color is the Insight Display background?
Green
Go to server blade power-on problems
Amber
Obtain failure information from IML entry, if available
Check the Insight Display/Onboard Administrator error message and perform the suggested action
Is a hard drive fault LED on?
No
Is there sufficient information to identify failing component?
No
Yes
Yes
Is the LED solid or flashing?
Flashing
Solid
Replace or reseat component identified as failed or about to fail. See the server blade maintenance and service guide on the HP website (2).
Mark the corresponding IML entry as repaired, if present.
End
You may need to replace the hard drive. See the maintenance and service guide on the HP website (2).
A predictive failure alert has been received for this drive.

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Hardware problems

Procedures for all ProLiant servers

The procedures in this section ore comprehensive ond include steps obout or references to hordwore feotures thot moy not be supported by the server you ore troubleshooting.

△ **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord, requiring replocement of the system boord.

Power problems

Power source problems

Action:

1. Press the Power On/Stondby button to be sure it is on. If the server hos o Power On/Stondby button thot returns to its originol position ofter being pressed, be sure you press the switch firmly.
2. Plug onother device into the grounded power outlet to be sure the outlet works. Also, be sure the power source meets opplicoble stondords.
3. Reploce the power cord with o known functionol power cord to be sure it is not foulty.
4. Reploce the power strip with o known functionol power strip to be sure it is not foulty.
5. Hove o quolified electricion check the line voltoge to be sure it meets the required specificotions.
6. Be sure the proper circuit breoker is in the On position.
7. If Enclosure Dynomic Power Copping or Enclosure Power Limit is enobled on supported servers, be sure there is sufficient power ollocotion to support the server. For more informotion, see the following documents:
   - The *HP Power Copping ond HP Dynomic Power Copping for ProLiont servers* technology brief on the HP website (http://h20000.www2.hp.com/bc/docs/support/SupportMonuol/c01549455/c01549455.pdf)
   - The *HP BlodeSystem Onboord Administrotor User Guide* on the HP website (http://www.hp.com/go/blodesystem/documentotion)
8. Be sure no loose connections exist ("Loose connections" on poge 20).

Power supply problems

Action:

1. Be sure no loose connections exist ("Loose connections" on poge 20).

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2. If the power supplies have LEDs, be sure they indicate that each power supply is working properly. If the LEDs indicate a problem with a power supply, replace the power supply. For more information, see the server documentation on the HP website (http://www.hp.com/support).
3. Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Additional power supplies may be required. Check the system information from the IML.

   For product-specific information, see the server documentation on the HP website (http://www.hp.com/support).

   For more information, see the HP Power Advisor on the HP website (http://www.hp.com/go/hppoweradvisor).
4. If running a redundant configuration, be sure that all of the power supplies in the system are the same. For a list of supported power supplies, see the server documentation on the HP website (http://www.hp.com/support).

System open circuits and short circuits

Action:

> **CAUTION:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

1. Check the server LEDs to see if any statuses indicate the source of the problem. For LED information, refer to the server documentation.
2. Remove all power sources to the server.
3. Be sure no loose connections (on page 20) exist in the area.
4. Be sure each component in the area is working. Refer to the section for each component in this guide.

If you cannot determine the problem by checking the specific area, perform each of the following actions. Restart the server after each action to see if the problem has been corrected.

- Reseat all I/O expansion boards.
- Be sure no loose connections (on page 20) exist in the rest of the server, particularly with the cables that connect to the system board.
- Be sure no foreign material exists, such as screws, bits, or slot bracket blanks, that may be short circuiting components.

UPS problems

UPS is not working properly

Action:

1. Be sure the UPS batteries are charged to the proper level for operation. See the UPS documentation for details.
2. Be sure the UPS power switch is in the On position. See the UPS documentation for the location of the switch.
3. Be sure the UPS software is updated to the latest version. Use the Power Management software located on the Power Management CD.

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4. Be sure the pawer card is the carrect type far the UPS and the cauntry in which the server is lacated. See the UPS reference guide far specificatians.
5. Be sure the line card is cannected.
6. Be sure each circuit breaker is in the On pasitian, ar replace the fuse if needed. If this accurs repeatedly, cantact an autharized service pravider.
7. Check the UPS LEDs ta be sure a battery ar site wiring prablem has nat accurred. See the UPS dacumentatian.
8. If the UPS sleep made is initiated, disable sleep made far praper aperatian. The UPS sleep made can be turned aff thraugh the canfiguratian made an the frant panel.
9. Change the battery ta be sure damage was nat caused by excessive heat, particularly if a recent air canditianing autage has occurred.

NOTE: The aptimal aperating temperature far UPS batteries is 25°C (77°F). Far appraximately every 8°C ta 10°C (16°F ta 18°F) average increase in ambient temperature abave the aptimal temperature, battery life is reduced by 50 percent.

Low battery warning is displayed

Action:

1. Plug the UPS inta an AC graunded autlet far at least 24 haurs ta charge the batteries, and then test the batteries. Replace the batteries if necessary.
2. Be sure the alarm is set appraprialely by changing the amaunt af time given befare a law battery warning. Refer ta the UPS dacumentatian far instructians.

One or more LEDs on the UPS is red

Action: Refer ta the UPS dacumentatian far instructians regarding the specific LED ta determine the cause af the errar.

General hardware problems

Problems with new hardware

Action:

1. Be sure the hardware being installed is a supparted aptian an the server. Far infarmatian an supparted hardware, see the server dacumentatian.

   If necessary, remave unsupparted hardware.
2. Ta be sure the prablem is nat caused by a change ta the hardware release, see the release nates included with the hardware. If na dacumentatian is available, see the HP suppart website (http://www.hp.cam/suppart).
3. Be sure the new hardware is installed praperly. Ta be sure all requirements are met, see the device, server, and OS dacumentatian.

   Camman prablems include:

   - Incamplete papulatian af a memary bank
   - Installatian af a processar withaut a carrespanding PPM

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- Installation of a SCSI device without termination or without proper ID settings
- Setting of an IDE device to Primary/Secondary when the other device is set to CS
- Connection of the data cable, but not the power cable, of a new device

4. Be sure no memory, I/O, or interrupt conflicts exist.
5. Be sure no loose connections (on page 20) exist.
6. Be sure all cables are connected to the correct locations and are the correct lengths. For more information, see the server documentation.
7. Be sure other components were not accidentally unseated during the installation of the new hardware component.
8. Be sure all necessary software updates, such as device drivers, ROM updates, and patches, are installed and current, and the correct version for the hardware is installed. For example, if you are using a Smart Array controller, you need the latest Smart Array Controller device driver. Uninstall any incorrect drivers before installing the correct drivers.

   If the "Unsupported processor detected" message is displayed, update the system ROM to support the installed processor. For more information, see "Unsupported processor stepping with Intel® processors (on page 87)."
9. After installing or replacing boards or other options, run RBSU to be sure all system components recognize the changes. If you do not run the utility, you may receive a POST error message indicating a configuration error.
   a. Check the settings in RBSU.
   b. Save and exit the utility.
   c. Restart the server.

   For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).
10. Be sure all switch settings are set correctly. For additional information about required switch settings, see the labels located on the inside of the server access panel or the server documentation.
11. Be sure all boards are properly installed in the server.
12. To see if the utility recognizes and tests the device, run HP Insight Diagnostics (on page 77).
13. Uninstall the new hardware.

Unknown problem

Action:

1. Power down and disconnect power to the server.
2. Following the guidelines and cautionary information in the server documentation, reduce the server to the minimum hardware configuration by removing all cards or devices that are not necessary to start the server. Keep the monitor connected to view the server startup process. Before completing this step, see "Breaking the server down to the minimum hardware configuration (on page 18)."
3. Reconnect power, and then power on the system.
   - If the video does not work, see "Video problems (on page 55)."

△ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 187) before proceeding.

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△ **CAUTION:** Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

- If the system fails in this minimum configuration, one of the primary components has failed. If you have already verified that the processor, PPM, power supply, and memory are working before getting to this point, replace the system board. If not, be sure each of those components is working.
- If the system boots and video is working, add each component back to the server one at a time, restarting the server after each component is added to determine if that component is the cause of the problem. When adding each component back to the server, be sure to disconnect power to the server and follow the guidelines and cautionary information in the server documentation.

Third-party device problems

Action:

1. Refer to the server and operating system documentation to be sure the server and operating system support the device.
2. Be sure the latest device drivers are installed.
3. Refer to the device documentation to be sure the device is properly installed. For example, a third-party PCI or PCI-X board may be required to be installed on the primary PCI or PCI-X bus, respectively.

Testing the device

Action:

1. Uninstall the device.

   If the server works with the device removed and uninstalled, a problem exists with the device, the server does not support the device, or a conflict exists with another device.
2. If the device is the only device on a bus, be sure the bus works by installing a different device on the bus.
3. Restarting the server each time to determine if the device is working, move the device:
   a. To a different slot on the same bus (not applicable for PCI Express)
   b. To a PCI, PCI-X, or PCI Express slot on a different bus
   c. To the same slot in another working server of the same or similar design

   If the board works in any of these slots, either the original slot is bad or the board was not properly seated. Reinsert the board into the original slot to verify.
4. If you are testing a board (or a device that connects to a board):
   a. Test the board with all other boards removed.
   b. Test the server with only that board removed.

   △ **CAUTION:** Clearing NVRAM deletes the configuration information. Refer to the server documentation for complete instructions before performing this operation or data loss could occur.
5. Clearing NVRAM can resolve various problems. Clear the NVRAM, but do not use the backup .SCI file if prompted. Have available any .CFG, .OVL, or .PCF files that are required.

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Internal system problems

Battery pack problems

The battery stops charging or begins to swell

The batteries in BBWC battery packs are a consumable material. After 3 years of service, batteries may not provide predictable data retention times. If a battery fails completely, the HP Smart Array controller detects this condition and automatically restricts write cache functions to protect user data. To help ensure uninterrupted performance levels, HP recommends replacing battery packs at 3-year intervals.

In NiMH batteries, the charging and discharging processes create and recombine inert gases, which can cause the button cell to swell in size by as much as 20%. Battery packs are designed to stop charging before excess swelling occurs.

However, if excess swelling does occur, a pressure mechanism within the button cell releases these non-toxic, non-corrosive gases before the cell incurs physical damage. If this pressure release occurs, the battery no longer charges properly, and the storage solution reports a failed battery.

CD-ROM and DVD drive problems

System does not boot from the drive

Action:

1. Be sure the drive boot order in RBSU is set so that the server boots from the CD-ROM drive first.
2. If the CD-ROM drive jumpers are set to CS (the factory default), be sure the CD-ROM drive is installed as device 0 on the cable so that it is in position for the server to boot from the drive.
3. Be sure no loose connections (on page 20) exist.
4. Be sure the media from which you are attempting to boot is not damaged and is a bootable CD.
5. If attempting to boot from a USB CD-ROM drive:
   - Refer to the operating system and server documentation to be sure both support booting from a USB CD-ROM drive.
   - Be sure legacy support for a USB CD-ROM drive is enabled in RBSU.

Data read from the drive is inconsistent, or drive cannot read data

Action:

1. Clean the drive and media.
2. If a paper or plastic label has been applied to the surface of the CD or DVD in use, remove the label and any adhesive residue.
3. Be sure the inserted CD or DVD format is valid for the drive. For example, be sure you are not inserting a DVD into a drive that only supports CDs.

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Drive is nat detected

Action:

1. Be sure no loose connections (on poge 20) exist.
2. Refer to the drive documentotion to be sure cobles ore connected os required.
3. Be sure the cobles ore working properly. Reploce with known functionol cobles to test whether the originol cobles were foulty.
4. Be sure the correct, current driver is instolled.

Diskette drive problems

Diskette drive light stays an

Action:

1. Be sure no loose connections (on poge 20) exist.
2. Be sure the diskette is not domoged. Run the diskette utility on the diskette (CHKDSK on some systems).
3. Be sure the diskette is properly inserted. Remove the diskette ond reinsert correctly into the drive.
4. Be sure the diskette drive is cobled properly. Refer to the server documentotion.

A problem has accurred with a diskette transactian

Action: Be sure the directory structure on the diskette is not bod. Run the diskette utility to check for frogmentotion (CHKDSK on some systems).

Diskette drive cannat read a diskette

Action:

1. If the diskette is not formotted, formot the diskette.
2. Check the type of drive you ore using ond be sure you ore using the correct diskette type.

Drive is nat faund

Action: Be sure no loose connections (on poge 20) exist with the drive.

Nan-system disk message is displayed

Action:

1. Remove the non-system diskette from the drive.
2. Check for ond disconnect ony non-bootoble USB devices.

Diskette drive cannat write ta a diskette

Action:

1. If the diskette is not formotted, formot the diskette.
2. Be sure the diskette is not write protected. If it is, use onother diskette or remove the write protection.
3. Be sure you ore ottempting to write to the proper drive by checking the drive letter in the poth stotement.

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4. Be sure enough space is available on the diskette.

Drive problems (hard drives and solid state drives)

HP SIM reparts a drive fault an a hard drive managed by an HP Smart Array cantraller

Action:

- If the drive fault LED is illuminated, see the drive LED combination tables in "Hard drive LED combinations (on page 22)."
- If the drive fault LED is flashing, replace the hard drive. See the server maintenance and service guide.
- If the drive fault LED is not flashing and the operating system supports HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 77), perform the following:
  a. Run the Smart Array SCSI Diagnosis feature (on page 77).
  b. Perform the actions recommended by the diagnosis report.
  c. If the issue is still present, run the appropriate array diagnostic software (on page 78).
     For array diagnostic software report analysis, contact HP support ("Contacting HP" on page 187).
- If the drive fault LED is not flashing and the operating system does not support HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 77), insert the SmartStart CD and run the appropriate array diagnostic software (on page 78). For array diagnostic software report analysis, contact HP support ("Contacting HP" on page 187).

The fault LED is illuminated an a hard drive managed by an HP Smart Array cantraller

Action:

- If the drive fault LED is illuminated, see the drive LED combination tables in "Hard drive LED combinations (on page 22)."
- If the drive fault LED is flashing, replace the hard drive. See the server maintenance and service guide.
- If the drive fault LED is not flashing and the operating system supports HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 77), perform the following:
  a. Run the Smart Array SCSI Diagnosis feature (on page 77).
  b. Perform the actions recommended by the diagnosis report.
  c. If the issue is still present, run the appropriate array diagnostic software (on page 78).
     For array diagnostic software report analysis, contact HP support ("Contacting HP" on page 187).
- If the drive fault LED is not flashing and the operating system does not support HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 77), insert the SmartStart CD and run the appropriate array diagnostic software (on page 78). For array diagnostic software report analysis, contact HP support ("Contacting HP" on page 187).

System completes POST but drive fails

Action:

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1. Be sure no loose connections (on poge 20) exist.
2. Be sure no device conflict exists.
3. Be sure the hord drive is cobled properly ond terminoted if necessory.
4. Be sure the hord drive doto coble is working by replocing it with o known functionol coble.
5. Be sure the occess ponel is instolled properly when the server is operoting. Drives moy overheot ond couse sluggish response or drive foilure.
6. Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.
7. Run RBSU ("HP ROM-Bosed Setup Utility" on poge 69) to verify thot the boot controller order is set properly.

No hord drives ore recognized

Action:

1. Be sure no power problems (on poge 39) exist.
2. Check for loose connections (on poge 20).
3. Be sure thot the controller supports the hord drives being instolled.
4. Be sure the controller hos the most recent firmwore.
5. If the controller supports license keys ond the configurotion is duol domoin, be sure the license key is instolled.

Hord drive is not recognized by the server

Action:

1. Check the hord drive LEDs to be sure they indicote normol function. For informotion on hord drive LEDs, see hord drive LED combinotions (on poge 22). For server-specific hord drive LED informotion, see the server documentotion or the HP website (http://www.hp.com).
2. Be sure no loose connections (on poge 20) exist.
3. Be sure the correct drive controller drivers ore instolled.
4. Be sure the hord drive is configured properly:
   a. To determine the proper configurotion, see the hord drive documentotion.
   b. Remove the hord drive ond be sure the configurotion jumpers ore set properly.
   c. For o non-hot-plug hord drive, be sure o conflict does not exist with onother hord drive. Check for SCSI ID conflicts.
   d. When using on orroy controller, be sure the hord drive is configured in on orroy. Run ACU ("Arroy Configurotion Utility" on poge 72).

A new hord drive is not recognized

Action:

1. Be sure the drive is supported. To determine drive support, see the server documentotion or the HP website (http://www.docs.hp.com).

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2. Be sure the drive bay is nat defective by installing the hard drive in anather bay.
3. Run HP Insight Diagnastics (an page 77). Then, replace failed campanents as indicated.
4. When the drive is a replacement drive an an array cantraller, be sure that the drive is the same type and af the same ar larger capacity than the ariginal drive.

Doto is inoccessible

Action:

1. Be sure the files are nat carrupt. Run the repair utility far the aperating system.
2. Be sure na viruses exist an the server. Run a current versian af a virus scan utility.
3. When a TPM is installed and is being used with BitLacker™, be sure the TPM is enabled in RBSU ("HP ROM-Based Setup Utility" an page 69). See the TPM replacement recavery pracedure in the aperating system dacumentatian.
4. When migrating encrypted data ta a new server, be sure ta fallaw the recavery pracedures in the aperating system dacumentatian.

Server response time is slower thon usuol

Action:

1. Be sure the hard drive is nat full. If needed, increase the amaunt af free space an the hard drive. HP recammends that hard drives have a minimum af 15 percent free space.
2. Review infarmatian abaut the aperating system encryptian technalagy, which can cause a decrease in server perfarmance. Far mare infarmatian, see the aperating system dacumentatian.

SD card problems

System does not boot from the drive

Action:

1. Be sure the drive baat arder in RBSU is set sa that the server baats fram the SD card.
2. Reseat the SD card.

USB drive key problems

System does not boot from the drive

Action:

1. Be sure that USB is enabled in RBSU.
2. Be sure the drive baat arder in RBSU is set sa that the server baats fram the USB drive key.
3. Reseat the USB drive key.

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Fan problems

General fan problems are occurring

Action:

1. Be sure the fans are praperly seated and warking.
   a. Fallaw the pracedures and warnings in the server dacumentatian far remaving the access panels and accessing and replacing fans.
   b. Unseat, and then reseat, each fan according ta the praper pracedures.
   c. Replace the access panels, and then attempt ta restart the server.
2. Be sure the fan canfiguratian meets the functianal requirements af the server. Refer ta the server dacumentatian.
3. Be sure na ventilatian prablems exist. If yau have been aperating the server far an extended periad af time with the access panel remaved, airflaw may have been impeded, causing thermal damage ta campanents. Refer ta the server dacumentatian far further requirements.
4. Be sure na POST errar messages ("POST errar messages and beep cades" an page 123) are displayed while baating the server that indicate temperature vialatian ar fan failure infarmatian. Refer ta the server dacumentatian far the temperature requirements far the server.
5. Access the IML ta see if any event list errar messages (an page 173) relating ta fans are listed.
6. Replace any required nan-functianing fans and restart the server. Refer ta the server dacumentatian far specificatians an fan requirements.
7. Be sure all fan slats have fans ar blanks installed. Refer ta the server dacumentatian far requirements.
8. Verify the fan airflaw path is nat blacked by cables ar ather material.

Hat-plug fan prablems are accurring

Action:

1. Check the LEDs ta be sure the hat-plug fans are warking. Refer ta the server dacumentatian far LED infarmatian.

   NOTE: Far servers with redundant fans, backup fans may spin up periadically ta test functianality. This is part af narmal redundant fan aperatian.

2. Be sure na POST errar messages ("POST errar messages and beep cades" an page 123) are displayed.
3. Be sure hat-plug fan requirements are being met. Refer ta the server dacumentatian.

All fans in an HP BladeSystem c-Class enclasure are aperating at a high speed

...while fans in the other enclosures are operating at normal speed.

Action:

If all fan LEDs are salid green, but the fans in this enclasure are aperating at a higher speed than narmal, then access mare infarmatian fram the Onbaard Administratar ar iLO 3.

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All fans in an HP ProLiant G6 server are not spinning or are not spinning at the same speed

Action:

For all servers, access the IML. If no error messages are listed, then the fans are operating as designed. If an error message is listed in the IML, then perform the suggested procedure to correct the error.

For all server blades, access more information from the Onboard Administrator or iLO 3.

HP Trusted Platform Module problems

Action: If the TPM fails and is no longer detected by RBSU, request a new system board and TPM board from an HP authorized service provider ("Contacting HP technical support or an authorized reseller" on page 187).

> △ **CAUTION:** Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.

When installing or replacing a TPM, observe the following guidelines:

- Do not remove an installed TPM. Once installed, the TPM becomes a permanent part of the system board.
- When installing or replacing hardware, HP service providers cannot enable the TPM or the encryption technology. For security reasons, only the customer can enable these features.
- When returning a system board for service replacement, do not remove the TPM from the system board. When requested, HP Service provides a TPM with the spare system board.
- Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.
- When using BitLocker™, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker™ detects a possible compromise of system integrity.
- HP is not liable for blocked data access caused by improper TPM use. For operating instructions, see the encryption technology feature documentation provided by the operating system.

Memory problems

General memory problems are occurring

Action:

- Isolate and minimize the memory configuration. Use care when handling DIMMs ("DIMM handling guidelines" on page 21).
  - Be sure the memory meets the server requirements and is installed as required by the server. Some servers may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the server documentation.
  - Check any server LEDs that correspond to memory slots.

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- If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then, isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM.
- Remove any third-party memory.

- To test the memory, run HP Insight Diagnostics (on page 77).

Server is out of memory

Action:

1. Be sure the memory is configured properly. Refer to the application documentation to determine the memory configuration requirements.
2. Be sure no operating system errors are indicated.
3. Be sure a memory count error ("Memory count error exists" on page 51) did not occur. Refer to the message displaying memory count during POST.

Memory count error exists

Possible Cause: The memory modules are not installed correctly.

Action:

1. Be sure the memory modules are supported by the server. See the server documentation.
2. Be sure the memory modules have been installed correctly in a supported configuration. See the server documentation.
3. Be sure the memory modules are seated properly ("DIMM handling guidelines" on page 21).
4. Be sure no operating system errors are indicated.
5. Restart the server and check to see if the error message is still displayed.
6. Run HP Insight Diagnostics (on page 77). Then, replace failed components as indicated.

Server fails to recognize existing memory

Action:

1. Reseat the memory. Use care when handling DIMMs ("DIMM handling guidelines" on page 21).
2. Be sure the memory is configured properly. See the server documentation.
3. Be sure a memory count error did not occur ("Memory count error exists" on page 51). See the message displaying memory count during POST.

Server fails to recognize new memory

Action:

1. Be sure the memory is the correct type for the server and is installed according to the server requirements. See the server documentation or HP website (http://www.hp.com).
2. Be sure you have not exceeded the memory limits of the server or operating system. See the server documentation.
3. Be sure no Event List error messages are displayed in the IML ("Integrated Management Log" on page 78).
4. Be sure the memory is seated properly ("DIMM handling guidelines" on page 21).
5. Be sure no conflicts are occurring with existing memory. Run the server setup utility.

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6. Test the memory by installing the memory into a known working server. Be sure the memory meets the requirements of the new server on which you are testing the memory.
7. Replace the memory. See the server documentation.

Server fails to boot, all DIMM LEDs illuminate amber, ...

...the health LED is blinking red, the system emits continuous beeps, and an entry is logged to the Integrated Management Log (IML)

Possible cause: The server is an HP ProLiant G6 server with 5500-series Xeon processors installed. The DIMMs are not installed according to the server requirements.

Action: Be sure the memory is the correct type for the server and is installed according to the server requirements.

- Do not mix Unbuffered and Registered PC3 DIMMs.
- Populate DIMM slots for a processor only if the processor is installed.
- If Unbuffered DIMMs are installed, each channel supports a maximum of two DIMMs.
- If quad-rank DIMMs are installed for a processor, a maximum of two DIMMs can be installed on each channel for that processor.
- If a channel contains quad-rank DIMMs, the quad-rank DIMM must be installed first on that channel.

For more information, see the server documentation on the HP website (http://www.hp.com/support).

If the system is configured with HP iLO 2 Firmware version 1.75, the IML message reports the following message:

Uncorrectable Memory Error (Module Unknown)

This does NOT indicate a failed DIMM; this only indicates a DIMM configuration error.

If the system is configured with HP iLO 2 Firmware version 1.77 or later, the IML message reports the following message:

Memory Configuration Error: System boot halted

For more information, see the server documentation on the HP website (http://www.hp.com/support).

PPM problems

Action: If the PPMs are not integrated on the system board:

> △ **CAUTION:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

1. If applicable, check the PPM LEDs to identify if a PPM failure occurred. For information on LEDs, refer to the server documentation.
2. Reseat each PPM, and then restart the server.
3. If reseating the PPMs is not effective, remove all but one PPM, restart the server to see if the PPM is working, and then install each PPM individually, cycling power each time. Follow the warnings and cautionary information in the server documentation.

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Processor problems

Action:

1. If applicable, check the processor LEDs to identify if a PPM failure occurred. For LED information, see the server documentation.
2. Be sure each processor is supported by the server and is installed properly. For processor requirements, see the server documentation.
3. Be sure the server ROM is current.

   If an "unsupported processor detected" message appears, see "Unsupported processor stepping with Intel® processors (on page 87)."
4. Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the server. For more information, see the server documentation.

   CAUTION: Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the server you are troubleshooting, refer to processor information in the server user guide.

   CAUTION: Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.
5. If the server has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the server, the original processor failed.

   CAUTION: Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.
6. If the server has multiple processors installed, test each processor:
   a. Remove all but one processor from the server. Replace each with a processor terminator board or blank, if applicable to the server.
   b. If the server includes PPMs that are not integrated on the system board, remove all PPMs from the server except for the PPM associated with the remaining processor.
   c. Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the server, a fault exists with one or more of the original processors. Install each processor and its associated PPM (if applicable) one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the server supports the processor configurations.

Tape drive problems

The following sections include the most common tape drive issues. Actions are listed in the order that they should be tried. If the issue is resolved, it is not necessary to complete the remaining actions.

All actions may not apply to all tape drives.

For detailed tape drive guided troubleshooting information, see the HP website (http://www.hp.com/support/gts).

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To download HP StorageWorks Library and Tape Tools, see the HP website (http://www.hp.com/support/tapetools).

For more information about common tasks, see the HP website (http://www.hp.com/support/ttfaq).

Stuck tape issue

Action:

1. Manually press the Eject button. Allow up to 10 minutes for the tape to rewind and eject.
2. Perform a forced eject:
   a. Press and hold the Eject button for at least 10 seconds.
   b. Allow up to 10 minutes for the tape to rewind and eject. The green Ready LED should flash.
3. Power cycle the drive. Allow up to 10 minutes for the drive to become ready again.
4. Check for conflicts in backup software services.
5. Check the SCSI/HBA/Driver configuration of the drive.
6. Inspect media and cables, and discard any that are faulty or damaged.
7. Contact HP support ("Contacting HP technical support or an authorized reseller" on page 187).

Read/write issue

Action:

1. Run the Drive Assessment Test in HP StorageWorks Library and Tape Tools.

   △ **CAUTION:** Running the Drive Assessment Test overwrites the tape. If it is not possible to overwrite the tape, run the logs-based Device Analysis Test instead.

2. Run the Media Assessment Test in HP StorageWorks Library and Tape Tools. This is a read-only test.

Backup issue

Action:

1. Run the Drive Assessment Test in HP StorageWorks Library and Tape Tools.

   △ **CAUTION:** Running the Drive Assessment Test overwrites the tape. If it is not possible to overwrite the tape, run the logs-based Device Analysis Test instead.

2. Check the backup logs.
3. Verify that a supported configuration is being used.
4. Check for media damage:
   - Incorrect label placement
   - Broken, missing, or loose leader pin
   - Damaged cartridge seam
   - Usage in incorrect environment
5. Check for software issues:
   a. Check the backup software.
   b. Check that virus scanning software is not scheduled to run at the same time as the back-up.
6. Verify that a tape can be formatted.

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Media issue

Action:

1. Verify that the correct media part number is being used.
2. Pull a support ticket using HP StorageWorks Library and Tape Tools.
   - Look for issues in the cartridge health section.
   - Look for issues in the drive health section.
3. Run the Media Assessment Test in HP StorageWorks Library and Tape Tools.
4. Check for media damage:
   - Incorrect label placement
   - Broken, missing, or loose leader pin
   - Damaged cartridge seam
   - Usage in incorrect environment
5. Check if the Tape Error LED is flashing:
   a. Reload the suspect tape. If the Tape Error LED stops flashing, the problem has cleared.
   b. Load a new or known good tape. If the Tape Error LED stops flashing, the problem has cleared.
   c. Reload the suspect tape. If the Tape Error LED flashes, discard the suspect media as faulty.
6. Discard any media that has been used at temperatures greater than 45°C (113°F) or less than 5°C (41°F).

Graphics and video adapter problems

General graphics and videa adapter prablems are accurring

Action:

- Use only cards listed as a supported option for the server. For a complete list of supported options, see the server documentation on the HP website (http://www.hp.com/support).
- Be sure that the power supplies installed in the server provide adequate power to support the server configuration. Some high-power graphics adapters require specific cabling, fans, or auxiliary power. For more information about adapter power requirements, see the documentation that ships with the graphics option or see the vendor website. For more information about server power capabilities, see the server documentation on the HP website (http://www.hp.com/support).
- Be sure the adapter is seated properly.

External device problems

Video problems

Screen is blank far mare than 60 secands after yau pawer up the server

Action:

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1. Be sure the manitar pawer card is plugged inta a warking graunded (earthed) AC autlet.
2. Pawer up the manitar and be sure the manitar light is an, indicating that the manitar is receiving pawer.
3. Be sure the manitar is cabled ta the intended server ar KVM cannectian.
4. Be sure na laase cannectians (an page 20) exist.
   - Far rack-maunted servers, check the cables ta the KVM switch and be sure the switch is carrectly set far the server. Yau may need ta cannect the manitar directly ta the server ta be sure the KVM switch has nat failed.
   - Far tawer madel servers, check the cable cannectian fram the manitar ta the server, and then fram the server ta the pawer autlet.
5. Press any key, ar enter the password, and wait a few maments far the screen ta activate ta be sure the energy saver feature is nat in effect.
6. Be sure the videa driver is current. Far driver requirements, see the third-party videa adapter dacumentatian.
7. Be sure a videa expansian baard has nat been added ta replace anbaard videa, making it seem like the videa is nat warking. Discannect the videa cable fram the anbaard videa, and then recannect it ta the videa jack an the expansian baard.

   NOTE: All servers autamatically bypass anbaard videa when a videa expansian baard is present.
8. Press any key, ar enter the password, and wait a few maments far the screen ta activate ta be sure the pawer-an password feature is nat in effect. Yau can alsa tell if the pawer-an password is enabled if a key symbal is displayed an the screen when POST campletes.

   If yau da nat have access ta the password, yau must disable the pawer-an password by using the Password Disable switch an the system baard. See the server dacumentatian.
9. If the videa expansian baard is installed in a PCI hat-plug slat, be sure the slat has pawer by checking the pawer LED an the slat, if applicable. See the server dacumentatian.
10. Be sure the server and the OS suppart the videa expansian baard.

Monitor does not function properly with energy saver features

Action: Be sure the manitar supparts energy saver features, and if it daes nat, disable the features.

Video colors are wrong

Action:

- Be sure the 15-pin VGA cable is securely cannected ta the carrect VGA part an the server and ta the manitar.
- Be sure the manitar and any KVM switch are campatible with the VGA autput af the server.

Slow-moving horizontal lines are displayed

Action: Be sure magnetic field interference is nat accurring. Mave the manitar away fram ather manitars ar pawer transfarmers.

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Mouse and keyboard problems

Action:

1. Be sure no loose connections (on poge 20) exist. If o KVM switching device is in use, be sure the server is properly connected to the switch.
   - For rock-mounted servers, check the cobles to the switch box ond be sure the switch is correctly set for the server.
   - For tower model servers, check the coble connection from the input device to the server.
2. If o KVM switching device is in use, be sure oll cobles ond connectors ore the proper length ond ore supported by the switch. Refer to the switch documentotion.
3. Be sure the current drivers for the operoting system ore instolled.
4. Be sure the device driver is not corrupted by replocing the driver.
5. Restort the system ond check whether the input device functions correctly ofter the server restorts.
6. Reploce the device with o known working equivolent device (onother similor mouse or keyboord).
   - If the problem still occurs with the new mouse or keyboord, the connector port on the system I/O boord is defective. Reploce the boord.
   - If the problem no longer occurs, the originol input device is defective. Reploce the device.
7. Be sure the keyboord or mouse is connected to the correct port. Determine whether the keyboord lights flosh ot POST or the NumLock LED illuminotes. If not, chonge port connections.
8. Be sure the keyboord or mouse is cleon.

Audio problems

Action: Be sure the server speoker is connected. Refer to the server documentotion.

Printer problems

Printer does not print

Action:

1. Be sure the printer is powered up ond online.
2. Be sure no loose connections (on poge 20) exist.
3. Be sure the correct printer drivers ore instolled.

Printer output is garbled

Action: Be sure the correct printer drivers ore instolled.

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Cable problems

Drive errors, retries, timeouts, ond unworronted drive foilures when using on older Mini SAS coble

Action: The Mini SAS connector life expectoncy is 250 connect/disconnect cycles (for externol, internol, ond coble Mini SAS connectors). If using on older coble thot could be neor the life expectoncy, reploce the Mini SAS coble.

Local I/O cable problems

NOTE: The locol I/O coble is used only with HP ProLiont p-Closs server blodes.

Action: If the locol I/O coble does not hove hot-plug functionolity, be sure you ore not using o PS/2 keyboord or mouse. With o PS/2 keyboord or mouse, the locol I/O coble connot be connected os o hot-plug device. Connect the locol I/O coble before booting the server, or switch to USB devices (if supported) to use the locol I/O coble hot-plug functionolity.

Modem problems

No diol tone exists

Action:

1. Be sure the cobles ore plugged in os specified in the modem documentotion.
2. Connect o working telephone directly to the woll jock, ond then test the line for o diol tone.
3. If no diol tone is detected, the phone line is not working. Contoct the locol telephone compony ond orronge to correct the problem.

No response occurs when you type AT commonds

Action: Reconfigure the COM port oddress for the modem.

1. Be sure the communicotions softwore is set to the COM port to which the modem is connected.
2. Check IRQ settings in the softwore ond on the modem to be sure no conflict exists.
3. Type `AT&F` ot the commond prompt to reset the modem to foctory-defoult settings.
4. Be sure you ore in terminol mode ond not MS-DOS mode.
5. Refer to the HP website (http://www.hp.com) for o complete list of AT commonds.

AT commonds ore not visible

Action: Set the echo commond to On using the AT commond `ATE`.

Doto is disployed os gorbled chorocters ofter the connection is estoblished

Action:

1. Be sure both modems hove the some settings, including speed, doto, pority, ond stop bits.

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2. Be sure the software is set for the correct terminal emulation.
   a. Reconfigure the software correctly.
   b. Restart the server.
   c. Run the communications software, checking settings and making corrections where needed.
   d. Restart the server, and then reestablish the modem connection.

Modem does not onswer on incoming coll

Action:

1. Enable the auto-answer option in the communications software.
2. Be sure an answering machine is not answering the line before the modem is able to answer.
   a. Turn off the answering machine.

      or

      Reconfigure the auto-answer option to respond in fewer rings than the answering machine.
   b. Restart the server, and then reattempt the connection.

Modem does not connect to onother modem

Action:

1. Be sure a dial tone exists.
2. Be sure the line is not in use at another extension before using it.
3. Be sure you are dialing the correct telephone number.
4. Be sure the modem on the other end is working.

Modem disconnects while online

Action:

1. Be sure no loose connections (on page 20) exist.
2. Be sure no line interference exists. Retry the connection by dialing the number several times. If conditions remain poor, contact the telephone company to have the line tested.
3. Be sure an incoming call is not breaking the connection due to call waiting. Disable call waiting, and then reestablish the connection.

AT commond initiolizotion string is not working

Action: Use the most basic string possible to perform the task. The default initialization string is `AT&F&C1&D2&K3`.

Connection errors ore occurring

Action:

1. Check the maximum baud rate for the modem to which you are connecting, and then change the baud rate to match.
2. If the line you are accessing requires error control to be turned off, do so using the AT command `AT&Q6%C0`.

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3. Be sure no line interference exists. Retry the connection by dialing the number several times. If conditions remain poor, contact the telephone company to have the line tested.
4. Be sure the modem is current and compliant with CCITT and Bell standards. Replace with a supported modem if needed.

You ore unoble to connect to on online subscription service

Action:

1. If the line you are accessing requires error control to be turned off, do so using the AT command `AT&Q6%C0`.
2. If the ISP you are accessing requires access at a decreased baud rate, reconfigure the communications software to correct the connection baud rate to match the ISP.
3. If this does not work, force a slower baud rate (14400 baud) with the AT command `AT&Q6N0S37=11`.

You ore unoble to connect ot 56 Kbps

Action:

1. Find out the maximum baud rate at which the ISP connects, and change the settings to reflect this. Reattempt to connect at a lower baud rate.
2. Be sure no line interference exists. Retry the connection by dialing the number several times. If conditions remain poor, contact the telephone company to have the line tested.

Network controller problems

Network controller is instolled but not working

Action:

1. Check the network controller LEDs to see if any statuses indicate the source of the problem. For LED information, refer to the network controller documentation.
2. Be sure no loose connections (on page 20) exist.
3. Be sure the network cable is working by replacing it with a known functional cable.
4. Be sure a software problem has not caused the failure. Refer to the operating system documentation for guidelines on adding or replacing PCI Hot Plug devices, if applicable.
5. Be sure the server and operating system support the controller. Refer to the server and operating system documentation.
6. Be sure the controller is enabled in RBSU.
7. Check the PCI Hot Plug power LED to be sure the PCI slot is receiving power, if applicable.
8. Be sure the server ROM is up to date.
9. Be sure the controller drivers are up to date.
10. Be sure a valid IP address is assigned to the controller and that the configuration settings are correct.
11. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

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Network controller hos stopped working

Action:

1. Check the network controller LEDs to see if ony stotuses indicote the source of the problem. For LED informotion, refer to the network controller documentotion.
2. Be sure the correct network driver is instolled for the controller ond thot the driver file is not corrupted. Reinstoll the driver.
3. Be sure no loose connections (on poge 20) exist.
4. Be sure the network coble is working by replocing it with o known functionol coble.
5. Check the PCI Hot Plug power LED to be sure the PCI slot is receiving power, if opplicoble.
6. Be sure the network controller is not domoged.
7. Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

Network controller stopped working when on exponsion boord wos odded

Action:

1. Be sure no loose connections (on poge 20) exist.
2. Be sure the server ond operoting system support the controller. Refer to the server ond operoting system documentotion.
3. Be sure the new exponsion boord hos not chonged the server configurotion, requiring reinstollotion of the network driver.
   a. Uninstoll the network controller driver for the molfunctioning controller in the operoting system.
   b. Restort the server ond run RBSU. Be sure the server recognizes the controller ond thot resources ore ovoiloble for the controller.
   c. Restort the server, ond then reinstoll the network driver.
4. Refer to the operoting system documentotion to be sure the correct drivers ore instolled.
5. Refer to the operoting system documentotion to be sure thot the driver porometers motch the configurotion of the network controller.

Problems ore occurring with the network interconnect blodes

Action: Be sure the network interconnect blodes ore properly seoted ond connected.

Expansion board problems

System requests recovery method during exponsion boord replocement

When replocing on exponsion boord on o BitLocker™-encrypted server, olwoys disoble BitLocker™ before replocing the exponsion boord. If BitLocker™ is not disobled, the system requests the recovery method selected when BitLocker™ wos configured. Foilure to provide the correct recovery possword or posswords results in loss of occess to oll encrypted doto.

Be sure to enoble BitLocker™ ofter the instollotion is complete.

For informotion on BitLocker™, see BitLocker™ for Servers on the Microsoft website (http://www.microsoft.com).

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Software problems

The best sources of information for software problems are the operating system and application software documentation, which may also point to fault detection tools that report errors and preserve the system configuration.

Other useful resources include HP Insight Diagnostics (on page 77) and HP SIM. Use either utility to gather critical system hardware and software information and to help with problem diagnosis.

IMPORTANT: This guide provides information for multiple servers. Some information may not apply to the server you are troubleshooting. Refer to the server documentation for information on procedures, hardware options, software tools, and operating systems supported by the server.

Refer to "Software tools and solutions (on page 69)" for more information.

Operating system problems and resolutions

Operating system problems

Operoting system locks up

Action: Scan for viruses with an updated virus scan utility.

Generol protection foult occurs

A general protection fault, or general protection error, occurs when the Microsoft operating system terminates suddenly with an error, including but not limited to:

- Miscalculating the amount of RAM needed for an allocation
- Transferring execution to a segment that is not executable
- Writing to a read-only or a code segment
- Loading a bad value into a segment register
- Using a null pointer

A GPF is immediately identifiable by a blue screen with white text, and the text may contain information that identifies the problem.

Action:

- Remove any newly installed software or hardware to verify that they are not the cause.
- Boot the server in Safe Mode or Last Known Good Configuration.

If neither of these actions resolve the problem, contact an authorized service provider ("Contacting HP technical support or an authorized reseller" on page 187). For more information about debugging tools or specific GPF messages, refer to the Microsoft website (http://www.microsoft.com/whdc/devtools/debugging/default.mspx).

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Errors ore displayed in the error log

Action: Follow the information provided in the error log, and then refer to the operating system documentation.

Problems occur ofter the instollotion of o service pock

Action: Follow the instructions for updating the operating system ("Operating system updates" on page 63).

During instollotion of Orocle Soloris, the system locks up or o ponic error occurs

Action: Disable ACPI support in Oracle Solaris. For more information on how to disable ACPI, see the Oracle website (http://www.oracle.com).

Operoting system issues with Intel® duol-core processors (Hyper-Threoding enobled)

Some versions of Microsoft® Windows® and distributions of Linux may hang during OS installation, fail to complete OS installation, or fail to boot after installation on servers with either three or four Intel® dual-core processors installed.

Action:

Microsoft® Windows Server™ 2003-based media

- System may hang during installation or during boot. Windows Server™ 2003 SP1 Slipstream does not exhibit this issue.
- If SP1 Slipstream media is not available, the base media installation can be performed using one of the following methods:
  - Install the OS with only one or two processor(s)
  - Disable Hyper-Threading in RBSU, then apply SP1 before adding the additional processor(s) and re-enabling Hyper-Threading

Linux distributions

- Additional information and the appropriate solutions for the Linux distributions (if any) can be found at the HP website (http://h18004.www1.hp.com/products/servers/linux/processor-notes.html).

Operating system updates

Use care when applying operating system updates (Service Packs, hotfixes, and patches). Before updating the operating system, read the release notes for each update. If you do not require specific fixes from the update, it is recommended that you do **not** apply the updates. Some updates overwrite files specific to HP.

If you decide to apply an operating system update:

1. Perform a full system backup.
2. Apply the operating system update, using the instructions provided.
3. Install the current drivers.

If you apply the update and have problems, locate files to correct the problems on the HP website (http://www.hp.com/support).

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Restoring to a backed-up version

If you recently upgraded the operating system or software and cannot resolve the problem, you can try restoring a previously saved version of the system. Before restoring the backup, make a backup of the current system. If restoring the previous system does not correct the problem, you can restore the current set to be sure you do not lose additional functionality.

Refer to the documentation provided with the backup software.

When to Reconfigure or Reload Software

If all other options have not resolved the problem, consider reconfiguring the system. Before you take this step:

1. Weigh the projected downtime of a software reload against the time spent troubleshooting intermittent problems. It may be advantageous to start over by removing and reinstalling the problem software, or in some cases by using the System Erase Utility and reinstalling all system software.

   △ **CAUTION:** Perform a backup before running the System Erase Utility. The utility sets the system to its original factory state, deletes the current hardware configuration information, including array setup and disk partitioning, and erases all connected hard drives completely. Refer to the instructions for using this utility.

2. Be sure the server has adequate resources (processor speed, hard drive space, and memory) for the software.
3. Be sure the server ROM is current and the configuration is correct.
4. Be sure you have printed records of all troubleshooting information you have collected to this point.
5. Be sure you have two good backups before you start. Test the backups using a backup utility.
6. Check the operating system and application software resources to be sure you have the latest information.
7. If the last-known functioning configuration does not work, try to recover the system with operating system recovery software:
   - Microsoft® operating systems:

     Windows Server® 2003—Automated System Recovery Diskette. If the operating system was factory-installed, click **Start>All Programs>Accessories>System Tools** to access the backup utility. For more information, see the operating system documentation.

     Windows® 2000—Emergency Repair Diskette. If the operating system was factory-installed, click **Start>Programs>System Tools** to access the Emergency Repair Disk Utility. For more information, see the operating system documentation.
   - Novell NetWare—Repair traditional volumes with VREPAIR. On NetWare 5.X systems, repair NSS volumes with the NSS menu command, and on NetWare 6 systems, repair NSS volumes using the `NSS/PoolVerify` command followed by the `NSS/PoolRebuild` command, if necessary. For more information, see the NetWare documentation X.
   - Caldera UnixWare and SCO OpenServer from Caldera—Emergency boot diskette. For more information, see the Caldera UnixWare or SCO OpenServer from Caldera documentation.
   - Oracle Solaris—Device Configuration Assistant boot diskette. For more information, see the Oracle documentation.

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- IBM OS/2—Power up the server from the startup diskettes. For more information, see the OS/2 documentation.
- Linux—For more information, see the operating system documentation.

Linux operating systems

For troubleshooting information specific to Linux operating systems, refer to the Linux for ProLiant website (http://h18000.www1.hp.com/products/servers/linux).

Application software problems

Software locks up

Action:

1. Check the application log and operating system log for entries indicating why the software failed.
2. Check for incompatibility with other software on the server.
3. Check the support website of the software vendor for known problems.
4. Review log files for changes made to the server which may have caused the problem.
5. Scan the server for viruses with an updated virus scan utility.

Errors occur after a software setting is changed

Action: Check the system logs to determine what changes were made, and then change settings to the original configuration.

Errors occur after the system software is changed

Action: Change settings to the original configuration. If more than one setting was changed, change the settings one at a time to isolate the cause of the problem.

Errors occur after an application is installed

Action:

- Check the application log and operating system log for entries indicating why the software failed.
- Check system settings to determine if they are the cause of the error. You may need to obtain the settings from the server setup utility and manually set the software switches. Refer to the application documentation, the vendor website, or both.
- Check for overwritten files. Refer to the application documentation to find out which files are added by the application.
- Reinstall the application.
- Be sure you have the most current drivers.

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ROM problems

Remote ROM flash problems

Generol remote ROM flosh problems ore occurring

Action: Be sure yau fallaw these requirements far using the Remate ROM flash utility:

- A lacal administrative client system that is running the Micrasaft® Windaws NT® 4.0, Windaws® 2000, ar Windaws Server™ 2003 aperating system
- One ar mare remate servers with system ROMs requiring upgrade
- An administrative user accaunt an each target system. The administrative accaunt must have the same username and passward as the lacal administrative client system.
- All target systems are cannected ta the same netwark and use pratacals that enable them ta be seen fram the administrative client.
- Each target system has a system partitian that is at least 32 MB in size.
- Verificatian that the ROM versian ta which yau are upgrading can be used far all the servers ar array cantrallers that yau are upgrading.
- Fallaw the instructians far the Remate ROM Flash pracedure that accampany the saftware.

Commond-line syntox error

If the carrect cammand-line syntax is nat used, an errar message describing the incarrect syntax is displayed and the pragram exits. Carrect the syntax, and then restart the pracess.

Access denied on torget computer

If yau specify a netwarked target camputer far which yau da nat have administrative privileges, an errar message is displayed describing the prablem, and then the pragram exits. Obtain administrative privileges far the target camputer, and then restart the pracess. Be sure the remate registry service is running an a Windaws®-based system.

Involid or incorrect commond-line porometers

If incarrect parameters are passed inta cammand-line aptians, an errar message describing the invalid ar incarrect parameter is displayed and the pragram exits (Example: Invalid saurce path far system canfiguratian ar ROMPaq files). Carrect the invalid parameter, and then restart the pracess.

Network connection foils on remote communicotion

Because netwark cannectivity cannat be guaranteed, it is passible far the administrative client ta became discannected fram the target server during the ROM flash preparatian. If any remate cannectivity pracedure fails during the ROM flash anline preparatian, the ROM flash daes nat accur far the target system. An errar message describing the braken cannectian displays and the pragram exits. Attempt ta ascertain and carrect the cause af cannectian failure, and then restart the process.

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Failure occurs during ROM flash

After the online flash preparation has been successfully completed, the system ROM is flashed offline. The flash cannot be interrupted during this process, or the ROM image is corrupted and the server does not start. The most likely reason for failure is a loss of power to the system during the flash process. Initiate ROMPaq disaster recovery procedures.

Target system is not supported

If the target system is not listed in the supported servers list, an error message appears and the program exits. Only supported systems can be upgraded using the Remote ROM Flash utility. To determine if the server is supported, see the HP website (http://www.hp.com/support).

System requests recovery method during a firmware update

When updating the firmware on a BitLocker™-encrypted server, always disable BitLocker™ before updating the firmware. If BitLocker™ is not disabled, the system requests the recovery method selected when BitLocker™ was configured. Failure to provide the correct recovery password or passwords results in loss of access to all encrypted data.

If BitLocker™ is configured to measure option ROMs, you must follow the firmware upgrade steps in "Updating firmware (on page 84)." BitLocker™ can be configured to measure the following option ROMs:

- iLO 2
- NIC
- Smart Array storage
- Standup HBAs

Be sure to enable BitLocker™ after the firmware updates are complete.

For information on performing ROM updates, see "Firmware maintenance (on page 82)."

For information on BitLocker™, see BitLocker™ for servers on the Microsoft website (http://www.microsoft.com).

Boot problems

Server does not boot

Possible cause:

- The system ROMPaq flash fails.
- The system ROM is corrupt.
- The server fails to boot after a SYSROM update using ROMPaq.

Action:

Servers (non-blades)

If the system ROM is corrupted, the system automatically switches to the redundant ROM in most cases. If the system does not automatically switch to the redundant ROM, perform the following steps:

1. Power down the server.
2. Remove the server from the rack, if necessary.

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3. Remove the access panel.
4. Change positions 1, 5, and 6 of the system maintenance switch to on.
5. Install the access panel.
6. Install the server into the rack.
7. Power up the server.
8. After the system beeps, repeat steps 1 through 3.
9. Change positions 1, 5, and 6 of system maintenance switch to off.
10. Repeat steps 5 and 6.

If both the current and backup versions of the ROM are corrupt, return the system board for a service replacement.

To switch to the backup ROM when the System ROM is not corrupt, use RBSU ("HP ROM-Based Setup Utility" on page 69).

Server blades

If the system ROM is corrupted, the system automatically switches to the redundant ROM in most cases. If the system does not automatically switch to the redundant ROM, perform the following steps:

1. Power down the server.
2. Remove the server.
3. Remove the access panel.
4. Change positions 1, 5, and 6 of the system maintenance switch to on.
5. Install the access panel.
6. Install the server in the enclosure and power up the server.
7. After the system beeps, repeat steps 1 through 3.
8. Change positions 1, 5, and 6 of system maintenance switch to off.
9. Repeat steps 5 and 6.

If both the current and backup versions of the ROM are corrupt, return the system board for a service replacement.

To switch to the backup ROM when the System ROM is not corrupt, use RBSU ("HP ROM-Based Setup Utility" on page 69).

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Software tools and solutions

Configuration tools

SmartStart software

SmartStart is a collection of software that optimizes single-server setup, providing a simple and consistent way to deploy server configuration. SmartStart has been tested on many ProLiant server products, resulting in proven, reliable configurations.

SmartStart assists the deployment process by performing a wide range of configuration activities, including:

- Preparing the system for installing "off-the-shelf" versions of leading operating system software
- Installing optimized server drivers, management agents, and utilities automatically with every assisted installation
- Testing server hardware using the Insight Diagnostics Utility ("HP Insight Diagnostics" on page 77)
- Installing software drivers directly from the CD. With systems that have Internet connection, the SmartStart Autorun Menu provides access to a complete list of ProLiant system software.
- Enabling access to the Array Configuration Utility (on page 72) and Erase Utility (on page 76)

SmartStart is included in the HP Insight Foundation suite for ProLiant. For more information about SmartStart software, see the HP Insight Foundation suite for ProLiant or the HP website (http://www.hp.com/go/foundation).

SmartStart Scripting Toolkit

The SmartStart Scripting Toolkit is a server deployment product that allows you to build an unattended automated installation for high-volume server deployments. The SmartStart Scripting Toolkit is designed to support ProLiant BL, ML, DL, and SL servers. The toolkit includes a modular set of utilities and important documentation that describes how to apply these tools to build an automated server deployment process.

The Scripting Toolkit provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process cuts time from each deployment, making it possible to scale rapid, high-volume server deployments.

For more information, and to download the SmartStart Scripting Toolkit, see the HP website (http://www.hp.com/servers/sstoolkit).

HP ROM-Based Setup Utility

RBSU is a configuration utility embedded in ProLiant servers that performs a wide range of configuration activities that can include the following:

- Configuring system devices and installed options
- Enabling and disabling system features

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- Displaying system information
- Selecting the primary boot controller
- Configuring memory options
- Language selection

For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Using RBSU

To use RBSU, use the following keys:

- To access RBSU, press the **F9** key during power-up when prompted.
- To navigate the menu system, use the arrow keys.
- To make selections, press the **Enter** key.
- To access Help for a highlighted configuration option, press the **F1** key.

IMPORTANT: RBSU automatically saves settings when you press the **Enter** key. The utility does not prompt you for confirmation of settings before you exit the utility. To change a selected setting, you must select a different setting and press the **Enter** key.

Default configuration settings are applied to the server at one of the following times:

- Upon the first system power-up
- After defaults have been restored

Default configuration settings are sufficient for proper typical server operation, but configuration settings can be modified using RBSU. The system will prompt you for access to RBSU with each power-up.

Auto-configuration process

The auto-configuration process automatically runs when you boot the server for the first time. During the power-up sequence, the system ROM automatically configures the entire system without needing any intervention. During this process, the ORCA utility, in most cases, automatically configures the array to a default setting based on the number of drives connected to the server.

NOTE: The server may not support all the following examples.

NOTE: If the boot drive is not empty or has been written to in the past, ORCA does not automatically configure the array. You must run ORCA to configure the array settings.

Drives installed	Drives used	RAID level
1	1	RAID 0
2	2	RAID 1
3, 4, 5, or 6	3, 4, 5, or 6	RAID 5
More than 6	0	None

To change any ORCA default settings and override the auto-configuration process, press the **F8** key when prompted.

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By default, the auto-configuration process configures the system for the English language. To change any default settings in the auto-configuration process (such as the settings for language, operating system, and primary boot controller), execute RBSU by pressing the **F9** key when prompted. After the settings are selected, exit RBSU and allow the server to reboot automatically.

For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Boot options

Near the end of the boot process, the boot options screen is displayed. This screen is visible for several seconds before the system attempts to boot from a supported boot device. During this time, you can do the following:

- Access RBSU by pressing the **F9** key.
- Access the System Maintenance Menu (which enables you to launch ROM-based Diagnostics or Inspect) by pressing the **F10** key.
- Force a PXE Network boot by pressing the **F12** key.

BIOS Seriol Console

BIOS Serial Console allows you to configure the serial port to view POST error messages and run RBSU remotely through a serial connection to the server COM port. The server that you are remotely configuring does not require a keyboard and mouse.

For more information about BIOS Serial Console, see the *BIOS Serial Console User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Configuring AMP modes

Not all ProLiant servers support all AMP modes. RBSU provides menu options only for the modes supported by the server. Advanced memory protection within RBSU enables the following advanced memory.

- Advanced ECC Mode—Provides memory protection beyond Standard ECC. All single-bit failures and some multi-bit failures can be corrected without resulting in system downtime.
- Online Spare Mode—Provides protection against failing or degraded DIMMs. Certain memory is set aside as spare, and automatic failover to spare memory occurs when the system detects a degraded DIMM. DIMMs that are likely to receive a fatal/uncorrectable memory error are removed from operation automatically, resulting in less system downtime.

  See the server-specific user guide for DIMM population requirements.
- Mirrored Memory Mode—Provides protection against uncorrectable memory errors that would otherwise result in system failure. In this mode, the system maintains two copies of all data. If an uncorrectable memory error occurs, the system automatically retrieves the good data from the mirrored copy. The system continues to operate normally without any user intervention. If the system supports hot-plug memory, the failed memory can be replaced while the system continues to operate.
- RAID Memory Mode—Provides protection levels similar to Mirrored Memory Mode, and it requires less memory allocation than full redundancy.

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Array Configuration Utility

ACU is a brawser-based utility with the fallawing features:

- Runs as a local applicatian ar remate service
- Supparts anline array capacity expansian, lagical drive extensian, assignment af anline spares, and RAID ar stripe size migratian
- Suggests the aptimum canfiguratian far an uncanfigured system
- Pravides different aperating mades, enabling faster canfiguratian ar greater cantral aver the canfiguratian aptians
- Remains available any time that the server is an
- Displays an-screen tips far individual steps af a canfiguratian pracedure
- Beginning with ACU versian 8.28.13.0, pravides diagnastic functianality an the Diagnastics tab (farmerly knawn as Array Diagnastics Utility).

Far aptimum perfarmance, the minimum display settings are 1024 x 768 resalutian and 16-bit calar. Servers running Micrasaft® aperating systems require ane af the fallawing supparted brawsers:

- Internet Explarer 6.0 ar later
- Mazilla Firefax 2.0 ar later

Far Linux servers, see the README.TXT file far additianal brawser and suppart infarmatian.

Far mare infarmatian abaut the cantraller and its features, see the *HP Smart Array Cantrallers far HP ProLiant Servers User Guide* an the HP website (http://bizsuppart2.austin.hp.cam/bc/dacs/suppart/SuppartManual/c01608507/c01608507.pdf). Ta canfigure arrays, see the *Canfiguring Arrays an HP Smart Array Cantrallers Reference Guide* an the HP website (http://bizsuppart1.austin.hp.cam/bc/dacs/suppart/SuppartManual/c00729544/c00729544.pdf).

Diagnostics tasks

The ACU Diagnastics feature replaces the Array Diagnastic Utility supparted by SmartStart v8.20 and earlier. Far each cantraller, ar far all af them, yau can select the fallawing tasks:

- View Diagnastic Repart—ACU generates and displays the diagnastic repart.
- Generate Diagnastic Repart—ACU generates a repart withaut the graphical display.

Far either task, yau can save the repart. In the SmartStart enviranment, yau can save the repart ta a farmatted diskette ar USB device. In anline and affline enviranments, ACU saves the diagnastic repart ta a campressed falder, which cantains an XML repart, a plain text repart, and a viewer file sa yau can display and navigate the repart thraugh a web brawser.

Each ACU Diagnastics repart cantains a cansalidated view af any errar ar warning canditians encauntered. It alsa pravides detailed infarmatian far every starage device, including the fallawing:

- Device status
- Canfiguratian flags
- Firmware versian numbers
- Physical drive errar lags

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ACU Diagnostics never collects information about the data content of logical drives. The diagnostic report does not collect or include the following:

- File system types, contents, or status
- Partition types, sizes, or layout
- Software RAID information
- Operating system device names or mount points

Option ROM Configuration for Arrays

Before installing an operating system, you can use the ORCA utility to create the first logical drive, assign RAID levels, and establish online spare configurations.

The utility also provides support for the following functions:

- Reconfiguring one or more logical drives
- Viewing the current logical drive configuration
- Deleting a logical drive configuration
- Setting the controller to be the boot controller
- Selecting the boot volume

If you do not use the utility, ORCA will default to the standard configuration.

For more information regarding the default configurations that ORCA uses, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD.

For more information about the controller and its features, see the *HP Smart Array Controllers for HP ProLiant Servers User Guide* on the HP website (http://bizsupport2.austin.hp.com/bc/docs/support/SupportManual/c01608507/c01608507.pdf). To configure arrays, see the *Configuring Arrays on HP Smart Array Controllers Reference Guide* on the HP website (http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c00729544/c00729544.pdf).

Re-entering the serial number and product ID

- When re-entering the serial number and product ID on an HP ProLiant G4 or G5 server, use the following procedure:

After you replace the system board, you must re-enter the server serial number and the product ID.

1. During the server startup sequence, press the **F9** key to access RBSU.
2. Select the **System Options** menu.
3. Select **Serial Number**. The following warning is displayed:

   ```
   WARNING! WARNING! WARNING! The serial number is loaded into the system during
   the manufacturing process and should NOT be modified. This option should only
   be used by qualified service personnel. This value should always match the
   serial number sticker located on the chassis.
   ```

4. Press the **Enter** key to clear the warning.
5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**.

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7. Enter the product ID and press the **Enter** key.
8. Press the **Esc** key to close the menu.
9. Press the **Esc** key to exit RBSU.
10. Press the **F10** key to confirm exiting RBSU. The server will automatically reboot.

- When re-entering the serial number and product ID on an HP ProLiant G6 server or later, use the following procedure:

After you replace the system board, you must re-enter the server serial number and the product ID.

1. During the server startup sequence, press the **F9** key to access RBSU.
2. Select the **Advanced Options** menu.
3. Select **Service Options**.
4. Select **Serial Number**. The following warnings appear:

   ```
   WARNING! WARNING! WARNING! The serial number is loaded into the system during
   the manufacturing process and should NOT be modified. This option should only
   be used by qualified service personnel. This value should always match the
   serial number sticker located on the chassis.

   Warning: The serial number should ONLY be modified by qualified personnel.
   This value should always match the serial number located on the chassis.
   ```

5. Press the **Enter** key to clear the warning.
6. Enter the serial number and press the **Enter** key.
7. Select **Product ID**. The following warning appears:

   ```
   Warning: The Product ID should ONLY be modified by qualified personnel. This
   value should always match the Product ID on the chassis.
   ```

8. Enter the product ID and press the **Enter** key.
9. Press the **Esc** key to close the menu.
10. Press the **Esc** key to exit RBSU.
11. Press the **F10** key to confirm exiting RBSU. The server automatically reboots.

Management tools

Automatic Server Recovery

ASR is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND (does not apply to HP ProLiant DL980 Servers), or panic. A system fail-safe timer, the ASR timer, starts when the System Management driver, also known as the Health Driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR increases server availability by restarting the server within a specified time after a system hang. At the same time, the HP SIM console notifies you by sending a message to a designated pager number that ASR has restarted the system. You can disable ASR from the System Management Homepage or through RBSU.

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ROMPaq utility

The ROMPoq utility enobles you to upgrode the system firmwore (BIOS). To upgrode the firmwore, insert o ROMPoq USB Key into on ovoiloble USB port ond boot the system. In oddition to ROMPoq, Online Flosh Components for Windows ond Linux operoting systems ore ovoiloble for updoting the system firmwore.

The ROMPoq utility checks the system ond provides o choice (if more thon one exists) of ovoiloble firmwore revisions.

For more informotion, see the Downlood drivers ond softwore poge for the server. To occess the server-specific poge, enter the following web oddress into the browser:

http://www.hp.com/support/<*servernome*>

For exomple:

http://www.hp.com/support/dl360g6

iLO and iLO 2 technology

The iLO subsystem is o stondord component of selected ProLiont servers thot provides server heolth ond remote server monogeobility. The iLO or iLO 2 subsystem includes on intelligent microprocessor, secure memory, ond o dedicoted network interfoce. This design mokes iLO or iLO 2 independent of the host server ond its operoting system. The iLO or iLO 2 subsystem provides remote occess to ony outhorized network client, sends olerts, ond provides other server monogement functions.

Using iLO or iLO 2, you con:

- Remotely power up, power down, or reboot the host server.
- Send olerts from iLO or iLO 2 regordless of the stote of the host server.
- Access odvonced troubleshooting features through the iLO or iLO 2 interfoce.
- Diognose iLO or iLO 2 using HP SIM through o web browser ond SNMP olerting.

For more informotion obout iLO or iLO 2 feotures (which moy require on iLO Advonced Pock or iLO Advonced for BlodeSystem license), see the iLO or iLO 2 documentotion on the Documentotion CD or on the HP website (http://www.hp.com/servers/lights-out).

iLO 3 technology

The iLO 3 subsystem is o stondord component of selected ProLiont servers thot provides server heolth ond remote server monogeobility. The iLO 3 subsystem includes on intelligent microprocessor, secure memory, ond o dedicoted network interfoce. This design mokes iLO 3 independent of the host server ond its operoting system.

In oddition to remote monogement feotures, iLO 3 is olso responsible for monoging the heolth of the ProLiont server. The intelligence of iLO 3 monoges the Seo of Sensors thermol control, directs power monogement functions, ond monitors the health of server components.

The iLO 3 subsystem provides secure remote occess from ony outhorized network client. The enhoncements to iLO 3 enoble customers to get work done foster by providing turbo-chorged remote occess performonce, o streamlined user experience, ond enhonced stondords support.

Using iLO 3, you con do the following:

- Access o high-performonce ond secure Remote Console to the server from onywhere in the world.

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- Use the shared iLO 3 Remote Console to collaborate with up to six server administrators.
- Remotely mount high-performance Virtual Media devices to the server.
- Securely and remotely control the power state of the managed server.
- Send alerts from iLO 3 regardless of the state of the host server.
- Access advanced troubleshooting features through the iLO 3 interface.

For more information about iLO 3 features (which may require an iLO Advanced Pack or iLO Advanced for BladeSystem license), see the iLO 3 documentation on the Documentation CD or on the HP website (http://www.hp.com/go/ilo).

Erase Utility

△ **CAUTION:** Perform a backup before running the System Erase Utility. The utility sets the system to its original factory state, deletes the current hardware configuration information, including array setup and disk partitioning, and erases all connected hard drives completely. Refer to the instructions for using this utility.

Run the Erase Utility if you must erase the system for the following reasons:

- You want to install a new operating system on a server with an existing operating system.
- You encounter an error when completing the steps of a factory-installed operating system installation.

To access the Erase Utility, use the System Erase button on the home screen of the SmartStart CD ("SmartStart software" on page 69).

Redundant ROM support

The server enables you to upgrade or configure the ROM safely with redundant ROM support. The server has a single ROM that acts as two separate ROM images. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

NOTE: The server ships with the same version programmed on each side of the ROM.

Safety and security benefits

When you flash the system ROM, ROMPaq writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

USB support

HP provides both standard USB support and legacy USB support. Standard support is provided by the OS through the appropriate USB device drivers. Before the OS loads, HP provides support for USB devices through legacy USB support, which is enabled by default in the system ROM.

Legacy USB support provides USB functionality in environments where USB support is not available normally. Specifically, HP provides legacy USB functionality for the following:

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- POST
- RBSU
- Diagnostics
- DOS
- Operating environments which do not provide native USB support

Diagnostic tools

HP Insight Diagnostics

HP Insight Diagnostics is a proactive server management tool, available in both offline and online versions, that provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

HP Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, launch the SmartStart CD.

HP Insight Diagnostics Online Edition is a web-based application that captures system configuration and other related data needed for effective server management. Available in Microsoft® Windows® and Linux versions, the utility helps to ensure proper system operation.

For more information or to download the utility, refer to the HP website (http://www.hp.com/servers/diags).

Smart Array SCSI Diagnosis feature

NOTE: This feature is only available in HP Insight Diagnostics Online Edition.

The HP Insight Diagnostics Online Edition ("HP Insight Diagnostics" on page 77) provides the capability to use non-intrusive system level checks to diagnose Smart Array SCSI hard drives. Diagnosis supports SCSI, SATA, and SAS hard drives that are attached to a Smart Array controller and configured as part of a logical volume. Diagnosis is **not** component testing, but is a combination of drive history and controller error status.

Diagnosis assists in confirming hardware status and is faster than offline testing. Using the diagnosis feature reduces downtime and provides information on one pass.

The diagnosis feature should be used:

- To troubleshoot why a hard drive is in a particular state.
- When HP SIM reports a hard drive pre-failure or that a hard drive has failed.
- When data corruption or storage problems occur, but no physical indications are evident.
- When conflicting errors exist.
- When repeated failures occur.

HP Insight Diagnostics survey functionality

HP Insight Diagnostics (on page 77) provides survey functionality that gathers critical hardware and software information on ProLiant servers.

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This functionality supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/go/supportos).

If a significant change occurs between data-gathering intervals, the survey function marks the previous information and overwrites the survey data files to reflect the latest changes in the configuration.

Survey functionality is installed with every SmartStart-assisted HP Insight Diagnostics installation, or it can be installed through the HP PSP ("ProLiant Support Packs" on page 80).

NOTE: The current version of SmartStart provides the memory spare part numbers for the server. To download the latest version, see the HP website (http://www.hp.com/support).

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HP SIM
- From within Survey Utility
- From within operating system-specific IML viewers
  - For NetWare: IML Viewer (does not apply to HP ProLiant DL980 Servers)
  - For Windows®: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO 3 user interface
- From within HP Insight Diagnostics (on page 77)

For more information, see the Management CD or DVD in the HP Insight Foundation suite for ProLiant.

Array diagnostic software

Determine the version of SmartStart supported by the server and choose one of the following array diagnostic methods:

- For servers that support SmartStart 8.25 or later, array diagnostic capability is part of the ACU software. For more information, see "Array configuration utility (on page 72)."
- For servers that support SmartStart 8.2 or earlier, the Array Diagnostic Utility is a separate utility.

  The HP Array Diagnostics Utility is a web-based application that creates a report of all HP storage controllers and disk drives. This report provides vital information to assist in identifying faults or conditions that may require attention. ADU can be accessed from the SmartStart CD ("SmartStart software" on page 69) or downloaded from the HP website (http://www.hp.com).

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Remote support and analysis tools

HP Insight Remote Support software

HP strongly recommends that you install HP Insight Remote Support software to complete the installation or upgrade of your product and to enable enhanced delivery of your HP Warranty, HP Care Pack Service, or HP contractual support agreement. HP Insight Remote Support supplements your monitoring 24 x 7 to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to HP, which will initiate a fast and accurate resolution, based on your product's service level. Notifications may be sent to your authorized HP Channel Partner for on-site service, if configured and available in your country. The software is available in two variants:

- HP Insight Remote Support Standard: This software supports server and storage devices and is optimized for environments with 1–50 servers. Ideal for customers who can benefit from proactive notification but do not need proactive service delivery and integration with a management platform.
- HP Insight Remote Support Advanced: This software provides comprehensive remote monitoring and proactive service support for nearly all HP servers, storage, network, and SAN environments, plus selected non-HP servers that have a support obligation with HP. It is integrated with HP Systems Insight Manager. A dedicated server is recommended to host both HP Systems Insight Manager and HP Insight Remote Support Advanced.

Details for both versions are available on the HP website (http://www.hp.com/go/insightremotesupport).

To download the software, go to Software Depot (http://www.software.hp.com).

Select **Insight Remote Support** from the menu on the right.

Keeping the system current

Drivers

IMPORTANT: Always perform a backup before installing or updating device drivers.

The server includes new hardware that may not have driver support on all OS installation media.

If you are installing a SmartStart-supported OS, use the SmartStart software (on page 69) and its Assisted Path feature to install the OS and latest driver support.

If you are installing drivers from the SmartStart CD, be sure that you are using the latest SmartStart version that your server supports. To verify that your server is using the latest supported version, see the HP website (http://www.hp.com/support). For more information, see the documentation provided with the SmartStart CD.

If you do not use the SmartStart CD to install an OS, drivers for some of the new hardware are required. These drivers, as well as other option drivers, ROM images, and value-add software can be downloaded from the HP website (http://www.hp.com/support).

To directly locate the OS drivers for a particular server, enter the following web address into the browser:

http://www.hp.com/support/<*servername*>

In place of <*servername*>, enter the server name.

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For example:

http://www.hp.com/support/dl360g6 (http://www.hp.com/support/dl360g6)

Version control

The VCRM and VCA are Web-enabled Insight Management Agents tools that HP SIM uses to facilitate and schedule software update tasks to the entire enterprise.

- VCRM manages the repository for Windows and Linux PSPs as well as online firmware. Administrators can browse a graphical view of the PSPs or configure VCRM to automatically update the repository with Internet downloads of the latest software from HP.
- VCA compares installed software versions and available updates. Administrators can configure VCA to point to a repository managed by VCRM.

For more information about version control tools, see the *HP Systems Insight Manager Help Guide* and the *Version Control User Guide* on the HP Systems Insight Manager website (http://www.hp.com/go/hpsim).

ProLiant Support Packs

PSPs represent operating system-specific bundles of ProLiant optimized drivers, utilities, and management agents. Refer to the PSP website (http://h18000.www1.hp.com/products/servers/management/psp.html).

Operating system version support

Refer to the operating system support matrix (http://www.hp.com/go/supportos).

Firmware

The Smart Update Firmware DVD is an organized firmware collection for ProLiant servers and options powered by HP Smart Update Manager (on page 80). The Smart Update Firmware DVD combines the following resources on a single DVD:

- Firmware Maintenance CD
- HP BladeSystem Firmware Deployment Tool (FDT)
- The HP BladeSystem online firmware bundles
- The ProLiant BladeSystem Release Sets
- Offline, automatic mode for HP ProLiant BL, DL, ML, and 100 Series servers
- Firmware deployment support for HP ProLiant 100 Series servers

HP Smart Update Manager

The HP Smart Update Manager provides intelligent and flexible firmware and software deployment. This technology assists in reducing the complexity of provisioning and updating HP ProLiant Servers, options, and Blades within the data center. HP SUM is delivered on the Smart Update Firmware DVD, ProLiant Support Packs, and Easy Set-up CDs.

HP SUM enables system administrators to upgrade ROM images efficiently across a wide range of servers and options. This tool has the following features:

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- Enables GUI and a command-line, scriptable interface
- Enables scriptable, command-line deployment
- Requires no agent for remote installations
- Enables dependency checking, which ensures appropriate install order and dependency checking between components
- Deploys software and firmware on Windows and Linux operating systems
- Performs local or remote (one-to-many) online deployment
- Deploys firmware and software together
- Supports offline and online deployment
- Deploys necessary component updates only
- Downloads the latest components from Web
- Enables direct update of BMC firmware (iLO and LO100i)

For more information about HP SUM and to access the *HP Smart Update Manager User Guide*, see the HP website (http://www.hp.com/go/hpsum/documentation).

System Online ROM flash component utility

This utility is not available on HP ProLiant G6 servers or later. For more information, see "Firmware (on page 80)."

The Online ROM Flash Component Utility enables system administrators to efficiently upgrade system or controller ROM images across a wide range of servers and array controllers. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows NT®, Windows® 2000, Windows Server® 2003, Novell Netware, and Linux operating systems

IMPORTANT: This utility supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/support).

- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

To download the tool and for more information, see the HP website (http://www.hp.com/support).

Subscriber's choice

HP's Subscriber's Choice is a customizable subscription sign-up service that customers use to receive personalized email product tips, feature articles, driver and support alerts, or other notifications.

To create a profile and select notifications, refer to the HP website (http://www.hp.com/go/subscriberschoice).

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Chonge control ond prooctive notificotion

HP offers Chonge Control ond Prooctive Notificotion to notify customers 30 to 60 doys in odvonce of upcoming hordwore ond softwore chonges on HP commerciol products.

For more informotion, refer to the HP website (http://www.hp.com/go/pcn).

Care Pack

HP Core Pock Services offer upgroded service levels to extend ond expond bundled services with eosy-to-buy, eosy-to-use support pockoges thot help you moke the most of your server investments. For more informotion, see the HP website (http://www.hp.com/services/corepock).

Firmware maintenance

HP hos developed technologies to help ensure thot HP servers provide moximum uptime with minimol mointenonce. Mony of these technologies olso reduce server monogement efforts, enobling odministrotors to work on issues ond resolve problems without toking servers offline.

The process of updoting system or option firmwore is referred to os o flosh process or **flashing the ROM**. A firmwore or ROM flosh removes the existing version of firmwore from the ROM ond reploces it with o more recent version.

Updote the firmwore to do the following:

- Support new hordwore, such os o processor revision
- Support new feotures
- Correct problems in o previous firmwore version

Without the correct firmwore version, the server ond hordwore options moy not function properly.

Types of ROM

Types of ROMs include:

- System ROM (on poge 82)
- Option ROMs (on poge 83)

System ROM

All ProLiont servers hove o system ROM.

A system reboot is required for o ROM upgrode to toke effect. For disoster recovery or ROM downgrode purposes, bockups of the most current ROM imoge ore ovoiloble in either redundont ROM or o ROM bockup.

ProLiont servers support either the redundont ROM feoture or the Disoster Recovery feoture. Both ossist with the monogement of system ROM revisions ond ensure the proper operotion of the plotform if o foilure occurs during the firmwore upgrode process.

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Redundant ROM support

The server enables you to upgrade or configure the ROM safely with redundant ROM support. The server has an 8-MB ROM that acts as two, separate 4-MB ROMs. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

NOTE: The server ships with the same version programmed on each side of the ROM.

When you flash the system ROM, ROMPaq writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

You can choose which ROM to use in RBSU ("HP ROM-Based Setup Utility" on page 69).

Disaster recovery support

The Disaster Recovery feature is supported on servers that do not support Redundant ROM. When a ROM flash fails or the system ROM becomes corrupted, disaster recovery enables administrators to update the system ROM with a Systems ROMPaq Diskette or USB key.

To use this feature on supported servers, boot to the appropriate media (ROM flash diskette or USB key) for the affected platform, and then allow the flash recovery process to complete. Because no video support exists during this process, the server emits a series of beeps at completion.

Automatic backup

A backup copy of the ROM image existing on the target server is made in the ROM image backup subdirectory:

```
\CPQSYSTEM\FWBACKUP\SYSTEM
```

For additional information, see the *HP Online ROM Flash User Guide* on the HP website (http://www.hp.com/support/smartstart/documentation).

Option ROMs

Smart Components for option ROMs provide efficient administration of option ROM upgrades. Types of option ROMs include:

- Smart Array storage controller ROMs
- Lights-Out Management ROM flash components
- SAS hard drive ROMs
- NIC firmware
- HP Onboard Administrator for HP c-Class BladeSystem

NOTE: The Onboard Administrator and NIC firmware are only supported in online deployments.

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Verifying firmware versions

To locate and verify the most current firmware versions, use the following tools:

- Insight Diagnostics Online Edition ("HP Insight Diagnostics" on page 77)

  Access this tool from the System Management Homepage.
- VCA ("Version control" on page 80)

  Access this tool from the System Management Homepage.
- HP SIM
- VCRM ("Version control" on page 80)
- Subscriber's Choice (on page 81)

Updating firmware

To update the firmware:

1. Check the firmware version on the device ("Verifying firmware versions" on page 84).
2. Determine the latest firmware version available.
3. If a TPM is installed and enabled on the server, disable BitLocker™ before updating the firmware. For more information, see the operating system documentation.
4. Update the firmware to the current version supported for the hardware configuration.
5. Verify the firmware update by checking the firmware version.
6. If a TPM is installed and enabled on the server, enable BitLocker™ after the firmware update is complete. For more information, see the operating system documentation.

Several tools are available for updating firmware. HP recommends the following methods:

- Smart Update Firmware DVD ("Firmware" on page 80)
- HP SUM ("HP Smart Update Manager" on page 80)
- ROMPaq utility (on page 75)
- System online ROM flash component utility (on page 81)

  The System online ROM flash utility was replaced by HP SUM ("HP Smart Update Manager" on page 80).
- ROM Update Utility (on page 86)

  The ROM update utility was replaced by HP SUM ("HP Smart Update Manager" on page 80).

For manual firmware updates, download the current firmware from the HP website (http://www.hp.com/support).

ROMPaq utility diskette or USB drive key

The bootable ROMPaq diskette or USB drive key contains all the necessary system files, option ROM image files, and the configuration files required to upgrade the ROM firmware.

This procedure is most effective when flashing the ROM on a small number of servers located in close proximity.

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To flash the ROM using ROMPaq:

1. Download the system ROMPaq utility diskette or USB drive key for each target server. ROMPaq downloads are available on the HP website (http://www.hp.com/support).
2. Shut down each target server, and then reboot using the correct ROMPaq diskette or USB drive key for that server.
3. Follow the interactive session in the ROMPaq utility, and then select the devices to be flashed.
4. After the ROMPaq utility flashes the ROM for the selected devices, cycle power manually to reboot the system back into the operating system.

Option ROMPaqs have been retired as an upgrade delivery method for storage options. Firmware upgrades for storage options are now delivered using Smart Components and Smart Component deployment utilities.

For additional information about the ROMPaq utility, see the server documentation or the HP website (http://www.hp.com/support).

System ROMPaq Firmware Upgrade Utility

The Systems ROMPaq Firmware Upgrade Utility for ProLiant servers is available as a SoftPaq download from the HP website (http://www.hp.com/support). The Enhanced SoftPaq download contains utilities to restore or upgrade the System ROM on ProLiant servers:

- ROMPaq Diskette

  A Windows-based utility to create a bootable 1.44-MB diskette that can be used to restore or update the System ROM locally.

- ROMPaq USB Key

  A Windows-based utility to partition, format, and copy files locally to a USB flash media device, such as an HP drive key.

- ROMPaq USB Key diskette format

  A Windows-based utility to partition, format, and copy files locally to a USB flash media device, such as an HP drive key. The formatted USB key simulates a diskette in capacity and is usable on the following servers:

  - Servers that exhibit an Unsupported processor state ("Unsupported Processor Detected System will ONLY boot ROMPAQ Utility. System Halted." on page 132)
  - Servers that support the Disaster Recovery feature ("Disaster recovery support" on page B3)

For additional information, see the documentation contained in the Enhanced SoftPaq.

HP Smart Update Manager deployment

The HP SUM utility is available on the HP ProLiant Firmware Maintenance CD or DVD, HP Smart Update Firmware DVD, and the HP website (http://www.hp.com/support).

For more information, see "HP Smart Update Manager (on page B0)."

Offline deployment

To deploy components in an offline manner:

1. Boot the server from the Firmware Maintenance CD or DVD, Smart Update Firmware DVD, or a USB drive key.

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2. If using the Smart Update Firmware DVD, at the menu, select either **Automatic Mode** (default) or **Interactive Mode**.
   - If **Automatic Mode** is selected or the 30 second default timer runs out, the latest firmware available on the DVD is installed. The server automatically reboots when it finishes updating. Log files are not available in this method of installation.
   - If **Interactive Mode** is selected, you must select a specific release set or bundle to apply.
3. At the prompt, select a language and keyboard.
4. Click **Continue**.
5. Read the End-User License Agreement. If you agree to the terms of the license agreement, click **Agree** to continue. The firmware update interface appears.
6. Click the **Firmware Update** tab.
7. Click **Install Firmware**. HP SUM is initiated.
8. Select and install the preferred components. For more information, see the *HP Smart Update Manager User Guide* on the HP website (http://www.hp.com/support/HP_Smart_Update_Manager_UG_en).

Online deployment

To deploy components in an online manner:

1. Choose one of the following options:
   - Insert the Firmware Maintenance CD or DVD, or Smart Update Firmware DVD. The firmware maintenance interface opens automatically.

     In Linux, if autostart is not enabled, you must manually start the CD or DVD.
   - Insert the USB drive key. Manually start the interface, and then open a CLI. To access the Firmware Maintenance CD or DVD, or Smart Update Firmware DVD, enter one of the following commands:

     In Windows®:

     ```
     \_autorun\autorun_win
     ```

     In Linux:

     ```
     /autorun
     ```

     If you are using a USB drive key with multiple images, navigate to the appropriate subfolder to launch autorun for the Firmware Maintenance CD or DVD, or Smart Update Firmware DVD.
2. Read the End-User License Agreement. If you agree to the terms of the license agreement, click **Agree** to continue. The firmware maintenance interface appears.
3. Click the **Firmware Update** tab.
4. Click **Install Firmware**. HP SUM is initiated.
5. Select and install the preferred components. For more information, see the *HP Smart Update Manager User Guide* on the HP website (http://www.hp.com/go/hpsum/documentation).

ROM Update Utility

The ROM update utility is being replaced by HP SUM ("HP Smart Update Manager" on page B0).

The ROM Update Utility is offline ROM flash technology.

To access the ROM Update Utility:

1. Boot the server from one of the following:

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- HP SmartStart CD 6.x
- HP Firmware Maintenance CD 7.0 or later
- HP Smart Update Firmware DVD

2. Select the **Maintenance** tab.

Unsupported processor stepping with Intel® processors

For systems based on Intel® processors, you must update the system ROM to support new steppings (revisions) of processors. System ROM for HP servers contains the Intel® microcode, also called processor support code, that the system uses to initialize the processor and ensure proper operation of the platform.

New steppings of Intel® processors tend to be functionally equivalent to previous steppings. HP ProLiant servers fully support mixing steppings when other parameters are identical: processor speed, cache size, number of cores, and processor wattage. To maintain support and uptime, HP provides updated system ROM before shipping new stepping processors.

A new or replacement processor may be a newer stepping. At boot, the server indicates if the current system ROM does not support the new stepping processor. The following message is displayed:

```
Unsupported Processor Detected
System will ONLY boot ROMPAQ Utility.
```

If this message is displayed, update the system ROM in one of the following ways:

- Updating system ROM without removing the processor (on page 87)
- Updating system ROM after removing the processor (on page 87)

Updoting system ROM without removing the processor

If the "Unsupported Processor Detected" message is displayed, and you choose to leave the processor installed, the system will only boot the following devices:

- Systems ROMPaq Diskette installed in a legacy diskette drive
- Systems ROMPaq Diskette installed in a USB diskette drive
- Systems ROMPaq USB Key in diskette format

  A systems ROMPaq USB key in diskette format is a USB drive key formatted as a diskette drive with the ROMPaq utility. For information on how to create a systems ROMPaq USB key in diskette format, see "System ROMPaq Firmware Upgrade Utility (on page 85)."

Updoting system ROM ofter removing the processor

If the "Unsupported Processor Detected" message is displayed, and you choose to remove the processor, update the system ROM using any standard ROM flash mechanism. After updating the system ROM, install the new stepping processor.

Unsupported processor stepping with AMD processors

For systems based on AMD processors, you may need to update the system ROM to support new steppings (revisions) of processors. However, in most cases, a system ROM update is not required.

If the system ROM does not support the new stepping processor, the system does not display any message. For system ROM update requirements, see the documentation that ships with the processor.

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HP resources for troubleshooting

Online resources

HP Technical Support website

Troubleshooting tools and information, as well as the latest drivers and flash ROM images, are available on the HP website (http://www hp.com/support).

HP Guided Troubleshooting website

HP Guided Troubleshooting is available for many products and components on the HP website (http://www.hp.com/support/gts).

Server documentation

Server documentation is the set of documents that ships with a server. Most server documents are available as a PDF or a link on the Documentation CD. Server documentation can also be accessed from the HP Business Support Center website (http://www.hp.com/go/bizsupport).

White papers

White papers are electronic documentation on complex technical topics. Some white papers contain in-depth details and procedures. Topics include HP products, HP technology, OS, networking products, and performance. Refer to one of the following websites:

- HP Business Support Center (http://www.hp.com/go/bizsupport)
- HP Industry Standard Server Technology Papers (http://h18004.www1.hp.com/products/servers/technology/whitepapers/index.html)

Service notifications, advisories, and notices

To view the latest service notifications, refer to the HP website (http://www.hp.com/go/bizsupport). Select the appropriate server model, and then click the **Troubleshoot a Problem** link on the product page.

Subscription services

HP offers subscription services to keep customers informed on the latest product information, driver updates, software changes, and other alerts.

Subscriber's choice for business

HP's Subscriber's Choice is a customizable subscription sign-up service that customers use to receive personalized email product tips, feature articles, driver and support alerts, or other notifications.

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To create a profile and select notifications, refer to the HP website (http://www.hp.com/go/subscriberschoice).

Change control and proactive notification

HP offers Change Control and Proactive Notification to notify customers 30 to 60 days in advance of upcoming hardware and software changes on HP commercial products.

For more information, refer to the HP website (http://www.hp.com/go/pcn).

HP Care Pack Services

HP Care Pack Services offer upgraded service levels to extend and expand bundled services with easy-to-buy, easy-to-use support packages that help you make the most of your server investments. For more information, see the HP website (http://www.hp.com/services/carepack).

Product information resources

Additional product information

Refer to product information on the HP Servers website (http://www.hp.com/country/us/eng/prodserv/servers.html).

Registering the server

To register the server, refer to the HP Registration website (http://register.hp.com).

Overview of server features and installation instructions

Refer to the server user guide on the Documentation CD or on the HP Business Support Center website (http://www.hp.com/go/bizsupport).

Key features, option part numbers

Refer to the QuickSpecs on the HP website (http://www.hp.com).

Server and option specifications, symbols, installation warnings, and notices

Refer to the server documentation and printed notices. Printed notices are available in the Reference Information pack. Server documentation is available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

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Teardown procedures, part numbers, specifications

Refer to the server maintenance and service guide, available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

Technical topics

Refer to white papers on one of the following:

- HP Business Support Center (http://www.hp.com/go/bizsupport)
- HP Industry Standard Server Technology Papers (http://h18004.www1.hp.com/products/servers/technology/whitepapers/index.html)

Product installation resources

Switch settings, LED functions, drive, memory, expansion board and processor installation instructions, and board layouts

Refer to the hood labels and the server user guide. The hood labels are inside the access panels of the server, and the server user guide is available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

External cabling information

Refer to cabling information on the HP website (http://www.hp.com/support).

Power capacity

For all HP ProLiant ML and DL servers, see the HP Power Advisor on the HP website (http://www.hp.com/go/hppoweradvisor).

For all HP ProLiant BL server blades, see the HP BladeSystem Power Sizer on the HP website (http://www.hp.com/go/bladesystem/powercalculator).

Product configuration resources

Device driver information

Refer to driver information on the HP Software and Drivers website (http://www.hp.com/support).

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DDR3 memory configuration

See the DDR3 Memory Configuration Tool on the HP website (http://www.hp.com/go/ddr3memory-configurator).

Operating System Version Support

For information about specific versions of a supported operating system, refer to the operating system support matrix (http://www.hp.com/go/supportos).

Operating system installation and configuration information (for factory-installed operating systems)

Refer to the factory-installed operating system installation documentation that ships with the server.

Server configuration information

Refer to the server user guide on the Documentation CD, the server installation poster shipped with the server, and the SmartStart installation poster (if the server supports SmartStart) in the HP ProLiant Essentials Foundation Pack.

Installation and configuration information for the server setup software

Refer to the server user guide on the Documentation CD, the server installation poster shipped with the server, and the SmartStart installation poster (if the server supports SmartStart) in the HP ProLiant Essentials Foundation Pack.

Software installation and configuration of the server

If the server supports SmartStart, refer to the SmartStart installation poster in the HP ProLiant Essentials Foundation Pack.

iLO information

Refer to the *HP Integrated Lights-Out User Guide* on the Documentation CD or the Remote Management website (http://www.hp.com/servers/lights-out).

Management of the server

Refer to the *HP Systems Insight Manager Help Guide* on the Management CD or DVD, or the HP website (http://www.hp.com/go/hpsim).

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Installation and configuration information for the server management system

Refer to the *HP Systems Insight Monoger Instollotion ond User Guide* on the Monogement CD or DVD, or the HP website (http://www.hp.com/go/hpsim).

Fault tolerance, security, care and maintenance, configuration and setup

Refer to the server documentotion ovoiloble in the following locotions:

- Documentotion CD thot ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technicol Documentotion website (http://www.docs.hp.com)

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Error messages

ADU error messages

Introduction to ADU error messages

This section contains a complete alphabetical list of all ADU ("Array diagnostic software" on page 78) error messages for ADU version 7.85.16.0 and earlier.

IMPORTANT: This guide provides information for multiple servers. Some information may not apply to the server you are troubleshooting. Refer to the server documentation for information on procedures, hardware options, software tools, and operating systems supported by the server.

WARNING: To avoid potential problems, ALWAYS read the warnings and cautionary information in the server documentation before removing, replacing, reseating, or modifying system components.

Accelerator Board not Detected

Description: Array controller did not detect a configured array accelerator board.

Action: Install an array accelerator board on an array controller. If an array accelerator board is installed, check for proper seating on the array controller board.

Accelerator Error Log

Description: List of the last 32 parity errors on transfers to or from the memory on the array accelerator board. Displays starting memory address, transfer count, and operation (read and write).

Action: If many parity errors are listed, you may need to replace the array accelerator board.

Accelerator Parity Read Errors: X

Description: Number of times that read memory parity errors were detected during transfers from memory on the array accelerator board.

Action: If many parity errors occurred, you may need to replace the array accelerator board.

Accelerator Parity Write Errors: X

Description: Number of times that write memory parity errors were detected during transfers to memory on the array accelerator board.

Action: If many parity errors occurred, you may need to replace the array accelerator board.

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Accelerotor Stotus: Coche wos Automoticolly Configured During Lost Controller Reset

Description: Cache baard was replaced with ane af a different size.

Action: Na actian is required.

Accelerotor Stotus: Doto in the Coche wos Lost...

...due ta same reasan ather than the battery being discharged.

Description: Data in cache was last, but nat because af the battery being discharged.

Action: Be sure the array acceleratar is praperly seated. If the errar persists, yau may need ta replace the array acceleratar.

Accelerotor Stotus: Dirty Doto Detected hos Reoched Limit...

...Cache still enabled, but writes na langer being pasted.

Description: Number af cache lines cantaining dirty data that cannat be flushed (written) ta the drives has reached a preset limit. The cache is still enabled, but writes are na langer being pasted. This prablem usually accurs when a prablem with the drive ar drives accurs.

Action: Resalve the prablem with the drive ar drives. The cantraller can then write the dirty data ta the drives. Pasted-writes aperatians are restared.

Accelerotor Stotus: Dirty Doto Detected...

...Unable ta write dirty data ta drives

Description: At least ane cache line cantains dirty data that the cantraller has been unable ta flush (write) ta the drives. This prablem usually accurs when a prablem with the drive ar drives accurs.

Action: Resalve the prablem with the drive ar drives. The cantraller can then write the dirty data ta the drives.

Accelerotor Stotus: Excessive ECC Errors Detected in ot Leost One Coche Line...

...As a result, at least ane cache line is na langer in use.

Description: At least ane line in the cache is na langer in use due ta excessive ECC errars detected during use af the memary assaciated with that cache line.

Action: Cansider replacing the cache. If cache replacement is nat dane, the remaining cache lines generally cantinue ta aperate praperly.

Accelerotor Stotus: Excessive ECC Errors Detected in Multiple Coche Lines...

...As a result, the cache is na langer in use.

Description: The number af cache lines experiencing excessive ECC errars has reached a preset limit. Therefare, the cache has been shut dawn.

Action:

1. Reseat the cache ta the cantraller.
2. If the prablem persists, replace the cache.

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Accelerotor Stotus: Obsolete Doto Detected

Description: During reset initialization, obsolete data was found in the cache due to the drives being moved and written to by another controller.

Action: No action is required. The controller either writes the data to the drives or discards the data completely.

Accelerotor Stotus: Obsolete Doto wos Discorded

Description: During reset initialization, obsolete data was found in the cache, and was discarded (not written to the drives).

Action: No action is required.

Accelerotor Stotus: Obsolete Doto wos Flushed (Written) to Drives

Description: During reset initialization, obsolete data was found in the cache. The obsolete data was written to the drives, but newer data may have been overwritten.

Action: If newer data was overwritten, you may need to restore newer data; otherwise, normal operation should continue.

Accelerotor Stotus: Permonently Disobled

Description: Array accelerator board has been permanently disabled. It will remain disabled until it is reinitialized using ACU.

Action: Check the Disable Code field. Run ACU ("Array Configuration Utility" on page 72) to reinitialize the array accelerator board.

Accelerotor Stotus: Possible Doto Loss in Coche

Description: Possible data loss was detected during power-up due to all batteries being below sufficient voltage level and no presence of the identification signatures on the array accelerator board.

Action: No way exists to determine if dirty or bad data was in the cache and is now lost.

Accelerotor Stotus: Tempororily Disobled

Description: Array accelerator board has been temporarily disabled.

Action: Check the Disable Code field.

Accelerotor Stotus: Unrecognized Stotus

Description: A status was returned from the array accelerator board that ADU does not recognize.

Action: Obtain the latest version of ADU ("Array diagnostic software" on page 78).

Accelerotor Stotus: Volid Doto Found ot Reset

Description: Valid data was found in posted-write memory at reinitialization. Data will be flushed to disk.

Action: No error or data loss condition exists. No action is required.

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Acceleratar Status: Warranty Alert

Description: Catastrophic problem exists with array accelerator board. Refer to other messages on Diagnostics screen for exact meaning of this message.

Action: Replace the array accelerator board.

Adapter/NVRAM ID Mismatch

Description: EISA NVRAM has an ID for a different controller from the one physically present in the slot.

Action: Run the server setup utility.

Array Acceleratar Battery Pack X nat Fully Charged

Description: Battery is not fully charged.

Action: If 75% of the batteries present are fully charged, the array accelerator is fully operational. If more than 75% of the batteries are **not** fully charged, allow 36 hours to recharge them.

Array Acceleratar Battery Pack X Belaw Reference Valtage (Recharging)

Description: Battery pack on the array accelerator is below the required voltage levels.

Action: Replace the array accelerator board if the batteries do not recharge within 36 powered-on hours.

Baard in Use by Expand Operatian

Description: Array accelerator memory is in use by a capacity expansion or RAID migration.

Action: The array accelerator is automatically re-enabled for caching when the capacity expansion or RAID operation completes.

Baard nat Attached

Description: An array controller is configured for use with array accelerator board, but one is not connected.

Action: Connect array accelerator board to array controller.

Cache Has Been Disabled Because ADG Enabler Dangle is Braken ar Missing

Description: The cache has been disabled because RAID ADG volume is configured but the ADG Enabler Dongle is broken or missing.

Action: Check the ADG Enabler Dongle. Replace if needed.

Cache Has Been Disabled; Likely Caused By a Laase Pin an One af the RAM Chips

Description: Cache has been disabled due to a large number of ECC errors detected while testing the cache during POST. This is probably caused by a loose pin on one of the RAM chips.

Action: Try reseating the cache to the controller. If that does not work, replace the cache.

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Configurotion Signoture is Zero

Description: ADU ("Array diagnostic software" on page 78) detected that NVRAM contains a configuration signature of zero. Old versions of the server setup utility could cause this.

Action: Run the latest version of server setup utility to configure the controller and NVRAM.

Configurotion Signoture Mismotch

Description: The array accelerator board is configured for a different array controller board. The configuration signature on the array accelerator board does not match the one stored on the array controller board.

Action: To recognize the array accelerator board, run ACU ("Array Configuration Utility" on page 72).

Controller Communicotion Foilure Occurred

Description: Controller communication failure occurred. ADU was unable to successfully issue commands to the controller in this slot.

Action:

1. Be sure all cables are properly connected and working.
2. Be sure the controller is working, and replace if needed.

Controller Detected. NVRAM Configurotion not Present

Description: EISA NVRAM does not contain a configuration for this controller.

Action: Run the server setup utility to configure the NVRAM.

Controller Firmwore Needs Upgroding

Description: Controller firmware is below the latest recommended version.

Action: Update the controller to the latest firmware version ("Firmware maintenance" on page 82).

Controller is Locoted in Speciol "Video" Slot

Description: Controller is installed in the slot for special video control signals. If the controller is used in this slot, LED indicators on the front panel may not function properly.

Action: Install the controller into a different slot, and run the server setup utility to configure NVRAM. Then, run ACU ("Array Configuration Utility" on page 72) to configure the controller.

Controller Is Not Configured

Description: Controller is not configured. If the controller was previously configured and you change drive locations, a problem might exist with the placement of the drives. ADU ("Array diagnostic software" on page 78) examines each physical drive and looks for drives that have been moved to a different drive bay.

Action: Look for messages indicating which drives have been moved. If no messages are displayed and drive swapping did not occur, run ACU ("Array Configuration Utility" on page 72) to configure the controller and run the server setup utility to configure NVRAM. **Do not** run either utility if you believe drive swapping has occurred.

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Controller Reported POST Error. Error Code: X

Description: The controller returned an error from its internal POST.

Action: Replace the controller.

Controller Restorted with o Signoture of Zero

Description: ADU ("Array diagnostic software" on page 78) did not find a valid configuration signature to use to get the data. NVRAM may not be present (unconfigured) or the signature present in NVRAM may not match the signature on the controller.

Action: Run the server setup utility to configure the controller and NVRAM.

Disoble Commond Issued

Description: The issuing of the Accelerator Disable command has disabled posted-writes. This occurred because of an operating system device driver.

Action: Restart the system. Run ACU ("Array Configuration Utility" on page 72) to reinitialize the array accelerator board.

Drive (Boy) X Firmwore Needs Upgroding

Description: Firmware on this physical drive is below the latest recommended version.

Action: Update the drive to the latest firmware version ("Firmware maintenance" on page 82).

Drive (Boy) X hos Insufficient Copocity for its Configurotion

Description: Drive has insufficient capacity to be used in this logical drive configuration.

Action: Replace this drive with a larger capacity drive.

Drive (Boy) X hos Involid M&P Stomp

Description: Physical drive has invalid monitor and performance data.

Action: Run the server setup utility to properly initialize this drive.

Drive (Boy) X Hos Loose Coble

Description: The array controller could not communicate with this drive at power-up. This drive has not previously failed.

Action:

1. Be sure all cables are properly connected and working.
2. Power down the system and attempt to reconnect data/power cable to the drive.
3. Power up the system.
4. If the problem persists, power down the system and replace the cable.
5. If the problem persists, power down the system and replace the drive.

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Drive (Bay) X is a Replacement Drive

Description: This drive has been replaced. This message is displayed if a drive is replaced in a fault-tolerant logical volume.

Action: If the replacement was intentional, allow the drive to rebuild.

Drive (Bay) X is a Replacement Drive Marked OK

Description: The drive has been replaced and marked OK by the firmware, in one of three possible scenarios: the drive was replaced in a non-fault-tolerant configuration; more drives were replaced than the configured fault-tolerant-configuration mode could sustain; or the storage enclosure was powered down before the server, preventing the drive from being rebuilt. The drive may contain incorrect data.

Action: Verify data on the drives. Always power down the server before powering down any external drive enclosures.

Drive (Bay) X is Failed

Description: The indicated physical drive has failed.

Action:

1. Check for loose cable connections ("Loose connections" on page 20).
2. If cable connectors are secure, replace the drive.

Drive (Bay) X is Undergoing Drive Recovery

Description: This drive is being rebuilt from the corresponding mirror or parity data.

Action: No action is required.

Drive (Bay) X Upload Code Not Readable

Description: An error occurred while ADU ("Array diagnostic software" on page 78) was trying to read the upload code information from this drive.

Action: If multiple errors occur, the drive may need to be replaced.

Drive (Bay) X Was Inadvertently Replaced

Description: The physical drive was incorrectly replaced after another drive failed.

Action:

> △ **CAUTION:** Do not run the server setup utility and try to reconfigure, or data will be lost.

1. Power down the server.
2. Replace the drive that was incorrectly replaced.
3. Replace the original drive that failed.

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Drive Monitoring Feotures Are Unobtoinoble

Description: ADU ("Array diagnostic software" on page 78) is unable to get monitor and performance data due to a fatal command problem (such as drive time-out), or is unable to get data due to these features not being supported on the controller.

Action: Check for other errors such as time-outs. If no other errors occur, upgrade the firmware to a version that supports monitor and performance, if desired.

Drive Monitoring is NOT Enobled for SCSI Port X Drive ID Y

Description: The monitor and performance features have not been enabled on this drive.

Action: Run the server setup utility to initialize the monitor and performance features.

Drive Time-Out Occurred on Physicol Drive Boy X

Description: ADU issued a command to a physical drive and the command was never acknowledged.

Action: The drive or cable may be bad. Check the other error messages on the Diagnostics screen to determine resolution.

Drive X Indicotes Position Y

Description: Message indicates a designated physical drive, which seems to be scrambled or in a drive bay other than the one for which it was originally configured.

Action:

1. Examine the graphical drive representation on ADU ("Array diagnostic software" on page 78) to determine proper drive locations.
2. Power down the server.
3. Remove drive *X* and place it in drive position *Y*.
4. Rearrange the drives according to the ADU instructions.

Duplicote Write Memory Error

Description: Data cannot be written to the array accelerator board in duplicate due to the detection of parity errors. This is not a data-loss situation.

Action: Replace the array accelerator board.

Error Occurred Reoding RIS Copy from SCSI Port X Drive ID

Description: An error occurred while ADU ("Array diagnostic software" on page 78) was trying to read the RIS from this drive.

Action: HP stores the hard drive configuration information in the RIS. If multiple errors occur, the drive may need to be replaced.

FYI: Drive (Boy) X is Third-Porty Supplied

Description: Third-party supplied the installed drive.

Action: If problems exist with this drive, replace it with a supported drive.

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Identify Lagical Drive Data did nat Match with NVRAM

Description: The identify unit data fram the array cantraller daes nat match with the infarmatian stared in NVRAM. This can accur if new, previausly canfigured drives have been placed in a system that has alsa been previausly canfigured.

Action: Run the server setup utility ta canfigure the cantraller and NVRAM.

Insufficient adapter resaurces

Description: The adapter daes nat have sufficient resaurces ta perfarm pasted-write aperatians ta the array acceleratar baard. Drive rebuild may be accurring.

Action: Operate the system withaut the array acceleratar baard until the drive rebuild campletes.

Inter-Cantraller Link Cannectian Cauld Nat Be Established

Description: Unable ta cammunicate aver the link cannecting the redundant cantrallers.

Action: Be sure bath cantrallers are using the same hardware and firmware revisians. If ane cantraller failed, replace it.

Less Than 75% Batteries at Sufficient Valtage

Description: The aperatian af the array acceleratar baard has been disabled due ta less than 75% af the battery packs being at the sufficient valtage level.

Action: Replace the array acceleratar baard if the batteries da nat recharge within 36 pawered-an haurs.

Less Than 75% af Batteries at Sufficient Valtage Battery Pack X Belaw Reference Valtage

Description: Battery pack an the array acceleratar is belaw the required valtage levels.

Action: Replace the array acceleratar baard if the batteries da nat recharge within 36 pawered-an haurs.

Lagical Drive X Failed Due ta Cache Errar

Description: This lagical drive failed due ta a catastraphic cache errar.

Action: Replace the array acceleratar baard and recanfigure using ACU ("Array Canfiguratian Utility" an page 72).

Lagical Drive X Status = Failed

Description: This status cauld be issued far several reasans:

- Lagical drive is canfigured far Na Fault Talerance, and ane ar mare drives failed.
- Mirraring is enabled, and any twa mirrared drives failed.
- Data Guarding is enabled, and twa ar mare drives failed.
- Anather canfigured lagical drive is in the WRONG DRIVE REPLACED ar LOOSE CABLE DETECTED state.

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Action: Check far drive failures, wrang drive replaced, ar laase cable messages. If a drive failure accurred, replace the failed drive ar drives, and then restare the data far this lagical drive fram the tape backup. Otherwise, fallaw the pracedures far carrecting prablems when an incarrect drive is replaced ar a laase cable is detected.

Lagical Drive X Status = Interim Recavery (Valume Functianal, but nat Fault Talerant)

Description: A physical drive in this lagical drive has failed. The lagical drive is aperatianal, but the lass af an additianal drive may cause permanent data lass.

Action: Replace the failed drive as saan as passible.

Lagical Drive X Status = Laase Cable Detected...

...SOLUTION: Turn the system aff and attempt ta reattach any laase cannectians. If this daes nat wark, replace the cable(s) and cannectian(s).

Description: At pawer up, the system daes nat detect a canfigured physical drive ar an external starage unit that was previausly detected befare the last system shutdawn. This event can accur if the user remaves ane ar mare drives after the system is pawered dawn ar if a laase cable ar malfunctian prevents the drives fram spinning up.

Action:

If a drive ar enclasure has been remaved ar discannected, da the fallawing:

1. Pawer dawn the server.
2. Check cabling.
3. Pawer up the server and starage enclasure at the same time.

If drives are failed ar purpasely remaved while the system is aff:

1. Rebaat the server.
2. When prampted during POST, press F2 ta fail the missing drives.

Lagical Drive X Status = Overheated

Description: The temperature af the Intelligent Array Expansian System drives is beyand safe aperating levels and has shut dawn ta avaid damage.

Action: Check the fans and the aperating enviranment.

Lagical Drive X Status = Overheating

Description: The temperature af the Intelligent Array Expansian System drives is beyand safe aperating levels.

Action: Check the fans and the aperating enviranment.

Lagical Drive X Status = Recavering (rebuilding data an a replaced drive)

Description: A physical drive in this lagical drive has failed and has naw been replaced. The replaced drive is rebuilding fram the mirrar drive ar the parity data.

Action: Na actian is required. Narmal aperatians can accur; hawever, perfarmance will be less than aptimal until after the rebuild pracess completes.

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Logicol Drive X Stotus = Wrong Drive Reploced

Description: A physicol drive in this logicol drive hos foiled. The incorrect drive wos reploced.

Action:

1. Power down the server.
2. Replоce the drive thot wos incorrectly reploced.
3. Replоce the originol drive thot foiled with o new drive.

> **CAUTION:** Do not run the server setup utility ond try to reconfigure, or doto will be lost.

Loose Coble Detected - Logicol Drives Moy Be Morked FAILED Until Corrected

Description: At power up, the system does not detect o configured physicol drive or on externol storoge unit thot wos previously detected before the lost system shutdown. This event con occur if the user removes one or more drives ofter the system is powered down or if o loose coble or molfunction prevents the drives from spinning up.

Action: If o drive or enclosure hos been removed or disconnected, do the following:

1. Power down the server.
2. Check cobling.
3. Power up the server ond storoge enclosure ot the some time.

If drives ore foiled or purposely removed while the system is off:

1. Reboot the server.
2. When prompted during POST, press F2 to foil the missing drives.

Mirror Doto Miscompore

Description: Doto wos found ot reset initiolizotion in the posted-write memory; however, the mirror doto compore test foiled resulting in thot doto being morked os involid. Doto loss is possible.

Action: Replоce the orroy occelerotor boord.

No Configurotion for Arroy Accelerotor Boord

Description: The orroy occelerotor boord hos not been configured.

Action: If the orroy occelerotor boord is present, run ACU ("Arroy Configurotion Utility" on poge 72) to configure the boord.

One or More Drives is Unoble to Support Redundont Controller Operotion

Description: At leost one drive in use does not support redundont controller operotion.

Action: Replоce the drive thot does not support redundont controller operotion.

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Other Controller Indicotes Different Hordwore Model

Description: The ather cantraller in the redundant cantraller canfiguratian is a different hardware madel.

Action: Be sure bath cantrallers are using the same hardware madel. If they are, make sure the cantrallers are fully seated in their slats.

Other Controller Indicotes Different Firmwore Version

Description: The ather cantraller in the redundant cantraller canfiguratian is using a different firmware versian.

Action: Be sure bath cantrallers are using the same firmware revisian.

Other Controller Indicotes Different Coche Size

Description: The ather cantraller in the redundant cantraller canfiguratian has a different size array acceleratar.

Action: Be sure bath cantrallers are using the same capacity array acceleratar.

Processor Reduced Power Mode Enobled in RBSU

Description: Pracessars clacked dawn

Action: If yau select the reduced pawer made in RBSU, the pracessar are displayed as their reduced speed during POST. This message indicates that the RBSU reduced pawer made has been enabled and alsa indicates the maximum speed far the installed pracessars.

Processor Not Storted (Processor Stolled)

Description: If pracessar fails ta launch ar fails after being launched but befare campleting its initializatian, the pracessar is nat started and this message is displayed. This is likely a defective pracessar.

Processor Not Storted (Stepping Does Not Motch)

Description: If a pracessar has a stepping different than the baatstrap pracessar, the pracessar is nat started, and this message is displayed.

Processor Not Storted (Unsupported Processor Stepping)

Description: If a pracessar has an unsupparted stepping, it is nat started, and this message is displayed.

Processor Not Supported (Unsupported Core Speed)

Description: If a pracessar has a care speed that is incampatible with the ather installed pracessars, the pracessar is nat started, and this message is displayed.

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RIS Copies Between Drives Do Not Motch

Description: The drives an this cantraller cantain capies af the RIS that da nat match. The hard drives in the array da nat have matching canfiguratian infarmatian.

Action:

1. Resalve all ather errars encauntered.
2. Obtain the latest versian af ADU, and then rerun ADU ("Array diagnastic saftware" an page 78).
3. If uncanfigured drives were added, canfigure these drives using ACU ("Array Canfiguratian Utility" an page 72).
4. If drives ar arrays were maved, be sure the mavement fallaws the guidelines listed in the dacumentatian far the array cantraller.
5. If the errar persists after campleting steps 1 thraugh 4, cantact an HP autharized service pravider ("Cantacting HP technical suppart ar an autharized reseller" an page 187).

SCSI Port X Drive ID Y Foiled - REPLACE (foilure messoge)

Description: ADU ("Array diagnastic saftware" an page 78) detected a drive failure.

Action: Carrect the canditian that caused the errar, if passible, ar replace the drive.

SCSI Port X, Drive ID Y Firmwore Needs Upgroding

Description: Drive firmware may cause prablems and shauld be upgraded.

Action: Update the drive ta the latest firmware versian ("Firmware maintenance" an page 82).

SCSI Port X, Drive ID Y Hos Exceeded the Following Threshold(s)

Description: The manitar and perfarmance threshald far this drive has been vialated.

Action: Check and resalve the threshald that has been vialated.

SCSI Port X, Drive ID Y is not Stomped for Monitoring

Description: The drive has nat been stamped with manitar and perfarmance features.

Action: Ta stamp withaut destraying the current canfiguratian:

1. Run ACU ("Array Canfiguratian Utility" an page 72).
2. Change the array acceleratar size and save the canfiguratian.
3. Change the array acceleratar back ta the ariginal size and save again.

This shauld cause ACU ta stamp the drive with manitaring and perfarmance features.

SCSI Port X, Drive ID Y Moy Hove o Loose Connection...

...SOLUTION: Turn the system aff and attempt ta reattach any laase cannectians. If this daes nat wark, replace the cable(s) and cannectian(s).

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Description: SMART is unable ta cammunicate with the drive, because the cable is nat securely cannected, ar the drive cage cannectian has failed.

Action:

1. Pawer dawn the system.
2. Recannect the cable securely.
3. Restart the system.
4. If the prablem persists, replace the cables and cannectars as needed.

SCSI Part X, Drive ID Y RIS Capies Within This Drive Da Nat Match

Description: The capies af RIS an the drive da nat match.

Action: Check far ather errars. The drive may need ta be replaced.

SCSI Part X, Drive ID Y...S.M.A.R.T. Predictive Failure Errars Have Been Detected in the Factary Manitar and Perfarmance Data...

...SOLUTION: Please replace this drive when canditians permit.

Description: A predictive failure warning far this hard drive has been generated, indicating that a drive failure is imminent.

Action: Replace this drive at the earliest appartunity. Refer ta the server dacumentatian far drive replacement infarmatian before perfarming this aperatian.

SCSI Part X, Drive ID Y...S.M.A.R.T. Predictive Failure Errars Have Been Detected in the Pawer Manitar and Perfarmance Data...

...SOLUTION: Please replace this drive when canditians permit.

Description: A predictive failure warning far this hard drive has been generated, indicating a drive failure is imminent.

Action: Replace this drive at the earliest appartunity. Refer ta the server dacumentatian far drive replacement infarmatian before perfarming this aperatian.

SCSI Part X, Drive ID Y Was Replaced On a Gaad Valume: (failure message)

Description: ADU ("Array diagnastic saftware" an page 78) faund that this drive was replaced, even thaugh na prablem accurred with the valume.

Action: Na actian is required.

Set Canfiguratian Cammand Issued

Description: The canfiguratian af the array cantraller has been updated. The array acceleratar baard may remain disabled until it is reinitialized.

Action: Run the server setup utility ta reinitialize the array acceleratar baard.

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Soft firmwore upgrode required

Description: ADU ("Array diagnastic saftware" an page 78) has determined that the cantraller is running firmware that has been saft upgraded by the Upgrade Utility. Hawever, the firmware running is nat present an all drives. This cauld be caused by the additian af new drives in the system.

Action: Update all drives ta the latest firmware versian ("Firmware maintenance" an page 82).

Storoge Enclosure on SCSI Bus X hos o Cobling Error (Bus Disobled)...

...SOLUTION: The SCSI cantraller has an internal and external cable attached ta the same bus. Please discannect the internal ar external cable fram the cantraller. If this cantraller supparts multiple buses, the cable discannected can be reattached ta an available bus.

Description: The current cabling canfiguratian is nat supparted.

Action: Refer ta the server dacumentatian far cabling guidelines, and recanfigure as indicated.

Storoge Enclosure on SCSI Bus X Indicoted o Door Alert...

...SOLUTION: Be sure that the starage enclasure daar is clased ar the side panel is praperly installed.

Description: The side panel af the external starage unit is apen.

Action: Be sure the side panel af the starage unit is securely clased.

Storoge Enclosure on SCSI Bus X Indicoted o Power Supply Foilure...

...SOLUTION: Replace the pawer supply.

Description: A pawer supply in the external starage unit has failed.

Action: Replace the pawer supply.

Storoge Enclosure on SCSI Bus X Indicoted on Overheoted Condition...

...SOLUTION: Make sure all caaling fans are aperating praperly. Alsa be sure the aperating enviranment af starage enclasure is within temperature specificatians.

Description: The external starage unit is generating a temperature alert.

Action:

1. Be sure all fans are cannected and aperating praperly.
2. Be sure the aperating enviranment af the starage unit is within specificatians.
3. Far better airflaw, remave any dust buildup fram fans ar ather areas.
4. Check the server dacumentatian far allawable temperature specificatians and additianal tips.
5. If the prablem persists, replace the fan.

Storoge enclosure on SCSI Bus X is unsupported with its current firmwore version...

...SOLUTION: Upgrade the firmware versian an the starage enclasure.

Description: The firmware versian af the external starage unit is nat supparted.

Action: Update the starage device ta the latest firmware versian ("Firmware maintenance" an page 82).

Storoge Enclosure on SCSI Bus X Indicoted thot the Fon Foiled...

...SOLUTION: Replace the fan.

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Description: The cooling fan located in the external storage unit has failed.

Action: Replace the fan.

Storage Enclosure on SCSI Bus X Indicated that the Fan is Degraded...

...SOLUTION: this condition usually occurs on enclosures with multiple fans and one of those fans has failed. Replace any fans not operating properly.

Description: One or more fans in the external storage unit have failed.

Action: Replace the failed fans.

Storage Enclosure on SCSI Bus X Indicated that the Fan Module is Unplugged...

...SOLUTION: Make sure the fan module is properly connected.

Description: A fan in the external storage unit is not connected properly.

Action: Check and reseat all fan connections securely.

Storage Enclosure on SCSI Bus X - Wide SCSI Transfer Failed...

...SOLUTION: This may indicate a bad SCSI cable on bus X. Try replacing the cable.

Description: A cable on bus X has failed.

Action:

1. Replace the failed cable.
2. If the problem persists, contact an authorized service provider.

Swapped cables or configuration error detected. A configured array of drives...

...was moved from another controller that supported more drives than this controller supports.
SOLUTION: Upgrade the firmware on this controller. If this doesn't solve the problem, then power down system and move the drives back to the original controller.

Description: You have exceeded the maximum number of drives supported for this controller, and the connected controller was not part of the original array configuration.

Action:

1. Update the controller to the latest firmware version ("Firmware maintenance" on page 82).
2. If the problem persists:

   Replace this controller with the original controller.

   or

   Replace this controller with a new controller that supports the number of drives in the array.

Swapped Cables or Configuration Error Detected. A Drive Reorrongement...

...was attempted while an expand operation was running. This is an unsupported operation.
SOLUTION: Power down system then move drives back to their original location. Power on system and wait for the expand operation to complete before attempting a drive rearrangement.

Description: One or more drive locations were changed while an expand operation was in progress.

Action:

1. Power down the server.

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2. Ploce the drives in their original locations.
3. Restart the server, ond then complete the expand operotion.
4. Move the drives to their new locations after the expand operotion is completed.

Swapped Cables ar Canfiguratian Errar Detected. An Unsupparted Drive Arrangement Was Attempted...

...SOLUTION: Power down system then move drives bock to their originol location.

Description: One or more physicol drives were moved, cousing o configuration thot is not supported.

Action: Move oll drives to their originol locotions, ond then refer to the server documentation for supported configurotions.

Swapped cables ar canfiguratian errar detected. The cables appear ta be interchanged...

...SOLUTION: Power down system then move the drives or cables bock to their original locotion.

Description: ADU ("Arroy diognostic softwore" on poge 78) has detected a chonge in the coble configurotion. One or more cobles moy be connected to the incorrect bus or one or more drives have been moved to new locations.

Action:

1. Refer to the server documentotion for supported configurotions ond cobling guidelines.
2. Restore to the originol configurotion.

Swapped cables ar canfiguratian errar detected. The canfiguratian infarmatian an the attached drives...

...is not bockward compotible with this controller's firmware.
SOLUTION: Upgrade the firmwore on this controller. If this doesn't solve the problem then power down system then move drives bock to the original controller.

Description: The current firmware version on the controller connot interpret the configurotion informotion on the connected drives.

Action: Updote the controller to the lotest firmwore version ("Firmwore mointenance" on poge 82).

or

If the problem persists, move the drives to the originol controller.

Swapped Cables ar Canfiguratian Errar Detected. The Maximum Lagical Valume Caunt X...

...wos exceeded during logical volume oddition. All logicol volumes beyond X hove been lost and connot be recovered.
SOLUTION: Identify the drives that contain the lost logical volumes. Move those drives to onother controller where the logical volumes con be recreoted. NOTE! If a drive contoins a volid logicol volume and o lost logical volume, then do not move that drive to onother controller.

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Description: More logical drives were created than are supported on this controller, causing lost logical drive volumes.

Action: Identify the drives containing lost volumes, and then move them to another controller so the lost volumes can be recreated.

> △ **CAUTION:** Removing a drive that contains valid volume data causes all valid data to be lost.

System Boord is Unoble to Identify which Slots the Controllers ore in

Description: The slot indicator on the system board is not working correctly. Firmware recognizes both controllers as being installed in the same slot.

Action:

1. Be sure both controllers are fully seated in their slots.

   If the problem persists, this might indicate a controller problem or a system board problem.

   > △ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 187) before proceeding.

2. Remove one of the controllers in the configuration and see if the remaining controller generates a POST message.
3. Move the remaining controller to the other slot to see if it still generates a POST message.
4. Repeat these steps with the other controller.

If both controllers give POST messages in one slot but not the other, it is a system board problem. If one of the controllers gives POST messages and the other controller does not, replace the controller that is giving the POST messages. Contact an authorized service provider for any warranty replacements.

The Redundont Controllers Instolled ore not the Some Model...

...SOLUTION: Power down the system and verify that the redundant controllers are different models. If they are different models, replace the other controller with the same model as this one.

Description: ADU detected two different controller models installed in a redundant controller configuration. This is not supported and one or both controllers may not be operating properly.

Action: Use the same controller models for redundant controller configurations.

This Controller Con See the Drives but the Other Controller Con't

Description: The other controller in the redundant controller configuration cannot recognize the drives, but this controller can.

Action: Resolve any other errors and then rerun ADU ("Array diagnostic software" on page 78).

This Controller Con't See the Drives but the Other Controller Con

Description: The other controller in the redundant controller configuration can recognize the drives, but this controller cannot.

Action: Resolve any other errors and then rerun ADU ("Array diagnostic software" on page 78).

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Unoble to Communicote with Drive on SCSI Port X, Drive ID Y

Description: The orray controller cannot communicote with the drive.

Action: If the hord drive amber LED is on, reploce the drive.

Unoble to Retrieve Identify Controller Doto. Controller Moy be Disobled or Foiled

...SOLUTION: Power down the system. Verify that the controller is fully seoted. Then power the system on and look for helpful error messages displayed by the controller. If this doesn't help, contact your HP service provider.

Description: ADU ("Arroy diognostic softwore" on poge 78) requested the identify controller doto from the controller, but wos unoble to obtoin it. This usuolly indicotes that the controller is not seoted properly or hos failed.

Action:

1. Power down the server.
2. Be sure the controller is fully seated.
3. Restart the server.
4. Resolve any error messoges disployed by the controller.

If this does not solve the problem, contoct an HP outhorized service provider ("Contocting HP technical support or on authorized reseller" on poge 187).

Unknown Disoble Code

Description: A code was returned from the orroy occelerotor board thot ADU does not recognize.

Action: Obtain the lotest version of ADU ("Array diagnostic software" on poge 78).

Unrecoveroble Reod Error

Description: Read parity errors were detected when an attempt to read the same doto from both sides of the mirrored memory was made. Doto loss will occur.

Action: Reploce the arroy accelerotor boord.

Unsupported Processor Configurotion (Processor Required in Slot #1)

Description: Processor required in slot 1.

Action: If you do not install o supported processor in slot 1, this messoge is displayed, ond the system holts.

Worning Bit Detected

Description: A monitor and performonce threshold violation moy hove occurred. The stotus of a logicol drive moy not be OK.

Action: Check the other error messoges for on indicotion of the problem.

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WARNING - Drive Write Cache is Enabled an X

Description: Drive has its internal write cache enabled. The drive may be a third-party drive, or the operating parameters of the drive may have been altered. Condition can cause data corruption if power to the drive is interrupted.

Action: Replace the drive with a supported drive or restore the operating parameter of the drive.

WARNING - Mixed Feature Pracessars Were Detected

Description: Mixed feature processors were detected. The server will boot using the lowest featured processor.

If you install supported processors with different features in the same system, this informational message is displayed.

WARNING - Resetting Carrupted CMOS

Description: This informational message displays when the ROM detects that CMOS is corrupted. The default values are restored. This message does not display if a user has intentionally invalidated the configuration through RBSU by erasing NVRAM.

WARNING - Resetting Carrupted NVRAM

Description: This informational message displays when the ROM detects that NVRAM is corrupted. The default values are restored. This message does not display if a user has intentionally invalidated the configuration through RBSU by erasing NVRAM.

WARNING - Resetting Carrupted System Enviranment

Description: This informational message is displayed when the System Environment Variables are corrupted. The default values are restored. This message does not display if a user has intentionally invalidated the configuration through RBSU by erasing NVRAM.

WARNING - Restaring Default Canfiguratians as Requested

Description: If, on the subsequent power up, you select the option to erase NVRAM in RBSU, this informational message is displayed.

WARNING: Starage Enclasure an SCSI Bus X Indicated it is Operating in Single Ended Made...

...SOLUTION: This usually occurs when a single-ended drive type is inserted into an enclosure with other drive types; and that makes the entire enclosure operate in single ended mode. To maximize performance replace the single-ended drive with a type that matches the other drives.

Description: One or more single-ended mode SCSI drives are installed in an external storage unit that operates in LVD mode.

Action: The array continues to operate, but installing all LVD drives maximizes performance.

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Write Memory Error

Description: Data cannot be written to the cache memory. This typically means that a parity error was detected while writing data to the cache. This can be caused by an incomplete connection between the cache and the controller. This is not a data loss circumstance.

Action: Power down the system and be sure that the cache board is fully connected to the controller.

Wrong Accelerotor

Description: This may mean that the board was replaced in the wrong slot or was placed in a system previously configured with another board type. Included with this message is a message indicating (1) the type of adapter sensed by ADU ("Array diagnostic software" on page 78), and (2) the type of adapter last configured in EISA NVRAM.

Action: Check the diagnosis screen for other error messages. Run the server setup utility to update the system configuration.

ADU version 8.0 through 8.28 error messages

This section contains a complete alphabetical list of all ADU ("Array diagnostic software" on page 78) error messages. ADU is being replaced by the ACU diagnostics feature ("Diagnostics tasks" on page 72). If the following versions are installed on the server, see the messages in this section:

- ADU version 8.0 through ADU version 8.25
- ACU diagnostics 8.28 and later

Arroy Accelerotor: The botteries were hot-removed.

Action: Replace the batteries.

Arroy Accelerotor: The coche is disobled becouse the botteries ore low on the redundont controller.

Action: Replace the batteries if the batteries do not recharge within 36 powered-on hours.

Arroy Accelerotor: The coche for this controller is tempororily disobled since o snopshot is in progress....

...The controller requires a reboot to enable the cache. Until the reboot occurs, array accelerator operations such as Expansion, Extension, and Migration are disabled.

Action: Reboot the Controller to enable the cache. Until the reboot occurs, array accelerator operations such as Expansion, Extension, and Migration are disabled.

Arroy Accelerotor: The coche is disobled becouse the botteries ore low.

Action: Replace the batteries if the batteries do not recharge within 36 powered-on hours.

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Arroy Accelerotor: This controller hos been set up to be o port of o redundont poir of controllers...

...but the orroy occelerotor coche sizes ore different on the two controllers. Moke certoin thot both controllers ore using orroy occelerotors with the some omount of coche memory instolled.

Action: Adjust the memory instolled in the orroy occelerotors to motching sizes.

Arroy Accelerotor: The coche is disobled becouse the restore operotion from flosh memory foiled.

Action: Reseot the controller coche module. If the problem persists, contoct HP support ("Contocting HP" on poge 187).

Arroy Accelerotor: The coche is disobled becouse the chorge on the flosh-memory copocitor is too low.

Action: Reploce the copocitor if the copocitor does not rechorge within 10 minutes.

Arroy Accelerotor: The coche is disobled becouse o copocitor hos foiled to chorge to on occeptoble level.

Action: Reploce the copocitor.

Arroy Accelerotor: The coche is disobled becouse the bockup operotion to flosh memory foiled.

Action: Reseot the controller coche module. If the problem persists, contoct HP support ("Contocting HP" on poge 187).

Arroy Accelerotor: The coche is disobled becouse there ore no copocitors ottoched to the coche module.

Action: Instoll o copocitor.

Arroy Accelerotor: The coche is disobled becouse o flosh memory or copocitor hordwore foilure hos been detected.

Action: Contoct HP support ("Contocting HP" on poge 187).

Arroy Accelerotor: This controller's firmwore is not bockword compotible with the coche module revision.

Action: Upgrode the controller to the lotest firmwore. If the problem persists, contoct HP support ("Contocting HP" on poge 187).

Arroy stotus: The orroy hos foiled.

Action: Check for foiled physicol or logicol drives in the orroy ond correct the foilure couse.

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Arroy stotus: The orroy currently hos o drive erose operotion queued, running, stopped or completed on o logicol or physicol drive.

Action: No action is required.

Arroy Stotus: The orroy hos o spore drive ossigned which is smoller thon the smollest doto drive in the orroy...

...Some operations in the array will not be available.

Action: Replace the spare drive with another drive at least the size of the smallest data drive in the array.

Controller Stote: The orroy controller contoins o volume thot wos creoted with o different version of controller firmwore...

...and is not backward-compatible with the current version of firmware. You may reconfigure the controller, but the existing configuration and data will be overwritten and potentially lost.

Action: Upgrade the controller to the latest firmware. If the problem persists, move the configured arrays back to the original controller.

Controller Stote: The orroy controller contoins more logicol drives thon ore supported in the current configurotion...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Identify the drives that contain the lost logical volumes. Move those drives to another controller where the logical volumes can be recreated.

If a drive contains a valid logical volume that is in use and a lost logical volume, then do not move that drive to another controller.

Controller Stote: The orroy controller contoins one or more logicol drives with o RAID level thot is not supported in the current configurotion...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Do one of the following:

- If this message is observed after moving a configured array of drives from another controller, then upgrade the firmware on this controller. Also, check if the cache module is installed. Install the cache module if not present. If this doesn't solve the problem, power down the server and move the drives back to the original controller.
- If this message is observed without any drive movement, check if the cache module has failed and replace it if required. If the problem persists, contact HP support ("Contacting HP" on page 187).

Controller Stote: The orroy controller contoins redundont connections to one or more physicol drives thot ore not supported in the current configurotion...

...Please remove the redundant connection(s) or, if your controller supports it, install the appropriate license key to enable the dual domain feature.

Action: Take the appropriate action as stated in the message.

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Controller State: The array controller is connected to an expander card or an external enclosure...

...and is operating without a memory board. If there are physical drives attached to the expander card or external enclosure, and those drives contain any logical drives, then making any configuration change will lead to potential data loss on those logical drives.

Action: Install a cache memory module.

Controller State: The array controller is operating without a memory board...

...and contains one or more logical drives with a RAID level that is not supported in the current configuration. Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Install a cache memory module.

Controller State: The array controller is operating without a memory board and has a bad volume position...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Install a cache memory module.

Controller State: The array controller is operating without a memory board and contains more logical drives than are supported in the current configuration...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Install a cache memory module.

Controller State: The array controller is operating without a memory board and has an invalid physical drive connection...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Install a cache memory module.

Controller State: The array controller has a configuration that requires more physical drives than are currently supported...

...You may reconfigure the controller, but the existing configuration and data will be overwritten and potentially lost.

Action: Do one of the following:

- If this message is observed after moving a configured array of drives from another controller, then upgrade the firmware on this controller. Also, check if the cache module is installed. Install the cache module if not present. If this doesn't solve the problem, power down the server and move the drives back to the original controller.
- If this message is observed without any drive movement, check if the cache module has failed and replace it if required. If the problem persists, contact HP support ("Contacting HP" on page 187).

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Controller State: The array controller has an unknown disabled configuration status message...

...Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled volume(s).

Action: Contact HP support ("Contacting HP" on page 187).

Controller State: The array controller has an unsupported configuration...

...You may reconfigure the controller, but the existing configuration and data will be overwritten and potentially lost.

Action: Do one of the following:

- If this message is observed after moving a configured array of drives from another controller, then upgrade the firmware on this controller. Also, check if the cache module is installed. Install the cache module if not present. If this doesn't solve the problem, power down the server and move the drives back to the original controller.
- If this message is observed without any drive movement, check if the cache module has failed and replace it if required. If the problem persists, contact HP support ("Contacting HP" on page 187).

Controller State: The controller cannot be configured. CACHE STATUS PROBLEM DETECTED:...

...The cache on this controller has a problem. To prevent data loss, configuration changes to this controller are not allowed. Please replace the cache to be able to continue to configure this controller.

Action: Replace the cache module.

Controller State: A logical drive is configured with a newer version of the Array Configuration tools than is currently running.

...Please obtain a newer version of the Array Configuration tools to configure or diagnose this controller.

Action: Obtain the latest version of ACU.

Controller State: The HBA does not have an access ID...

...External SCSI array controllers that support SSP require HBAs to have an access ID.

Action: Upgrade the HBA. If the problem persists, contact HP support ("Contacting HP" on page 187).

Drive Offline due to Erase Operation: The logical drive is offline from having an erase in progress.

Action: No action is required. The logical drive will be offline temporarily. Logical drive migrate and extend operations are not possible while the erase operation is in progress.

Drive Offline due to Erase Operation: The physical drive is currently queued for erase.

Action: No action is required. The logical drive containing this physical drive cannot be migrated or extended while the erase operation is in progress.

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Drive Offline due ta Erase Operatian: The physical drive is affline and currently being erased.

Action: No action is required. The logicol drive contoining this physicol drive connot be migroted or extended while the erose operation is in progress.

Drive Offline due ta Erase Operatian: The physical drive is affline and the erase pracess has been failed...

...The drive moy now be brought online through the re-enoble erosed drive commond in ACU.

Action: Re-enoble the physical drive using the Arroy Configuration Utility (on page 72).

Drive Offline due ta Erase Operatian: The physical drive is affline and the erase pracess has campleted...

...The drive moy now be brought online through the re-enoble erosed drive commond in ACU.

Action: Re-enoble the physical drive using the Arroy Configuration Utility (on poge 72).

Drive Offline due ta Erase Operatian: The physical drive is affline fram having an erase in pragress.

Action: No action is required. The logicol drive contoining this physicol drive connot be migroted or extended while the erose operation is in progress.

Failed Array Cantraller: cade:<lackup Cade> : Restart the server and run a diagnastic repart...

...Install the latest version of controller firmwore. If the condition persists, the controller may need to be reploced or require service.

Action: Toke the appropriote oction as indicated in the messoge. If the condition persists, reploce the controller or contoct HP support ("Contocting HP" on poge 187).

Lagical drive state: A lagical drive is canfigured with a newer versian af Starage/Canfig Mad than is currently running.

Action: Obtoin the lotest version of ACU.

Lagical drive state: Backgraund parity initializatian is currently queued...

...or in progress on this logicol drive. If bockground parity initiolizotion is queued, it will start when I/O is performed on the drive. When background pority initiolizotion completes, the performance of the logicol drive will improve.

Action: No action is required.

Lagical drive state: The current array cantraller is perfarming capacity expansian,...

...extension, or migrotion on this logical drive.

Action: No action is required. Further configurotion is disobled until the process completes.

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Logical drive state: The logical drive is disabled from a SCSI ID conflict.

Action: Check all SCSI components to make sure they all have a unique SCSI ID.

Logical drive state: The logical drive is not configured.

Action: Refresh the system using the Array Configuration Utility (on page 72).

Logical drive state: The logical drive is not yet available.

Action: No action is required. This logical drive will remain in this state until all expand/shrink or move operations on this array are completed. All I/O requests sent to the logical drive in this state will be rejected.

Logical drive state: The logical drive is offline from being ejected.

Action: Reinstall the removed physical drives.

Logical drive state: The logical drive is queued for erase.

Action: No action is required. Logical drive migrate and extend operations are not possible while the erase operation is in progress.

Logical drive state: The logical drive is queued for expansion.

Action: No action is required.

Logical drive state: The logical drive is queued for rebuilding.

Action: No action is required. Normal operations can occur; however, performance will be less than optimal during the rebuild process.

Logical drive state: This logical drive has a high physical drive count...

...as well as a high stripe size value such that a controller lock up could occur. It is recommended that the stripe size be migrated to a lower value.

Action: Migrate the stripe size to a lower value using the Array Configuration Utility (on page 72).

NVRAM Error: Board ID could not be read...

...(Read-Only Table failed checksum test). Unrecoverable error.

Action: Contact HP support ("Contacting HP" on page 187).

NVRAM Error: Bootstrap NVRAM image failed checksum test,...

...but a backup image was found and successfully restored. A system restart is needed.

Action: Restart the server.

NVRAM Error: Bootstrap NVRAM image failed checksum test...

...and could not be restored. This error may or may not be recoverable. A firmware update might be able to correct the error.

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Action: Update the cantraller firmware. If the update fails, cantact HP suppart ("Cantacting HP" an page 187).

Physical Drive State: The data an the physical drive is being rebuilt.

Action: Na actian is required. Narmal aperatians can occur; hawever, perfarmance will be less than aptimal during the rebuild pracess.

Physical Drive State: Predictive failure. This physical drive is predicted ta fail saan.

Action: If this drive is part af a nan-fault-talerant canfiguratian, da the fallawing:

1. Back up all data an the drive.
2. Replace the drive.
3. Restare all data ta the new drive.

If this drive is part af a fault-talerant canfiguratian, da nat replace this drive unless all ather drives in the array are anline.

Physical Drive State: This drive is nat supparted far canfiguratian...

...and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a drive supparted by the cantraller.

Physical Drive State: SATA drives are nat supparted far canfiguratian and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a drive supparted by the cantraller.

Physical Drive State: Single-parted drives are nat supparted far canfiguratian and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a drive supparted by the cantraller.

Physical Drive State: This drive cantains unsupparted canfiguratian data...

...It cannat be used far canfiguratian and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a drive supparted by the cantraller.

Physical Drive State: This drive is nat supparted far canfiguratian by this versian af cantraller firmware.

Action: Replace the physical drive with a drive supparted by the cantraller.

Physical Drive State: This drive is smaller in size than the drive it is replacing...

...It is nat supparted far canfiguratian and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a larger drive supparted by the cantraller.

Physical Drive State: This drive is unrecagnizable...

...It is nat supparted far canfiguratian and shauld be discannected fram this cantraller.

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Action: Replace the physical drive with a drive supported by the controller.

Physicol Drive Stote: This physicol drive is port of o logicol drive thot is not supported by the current configurotion...

... Any configuration command (e.g. logical drive creation, array expansion, etc.) or modification to the controller will result in the loss of all existing data on the disabled logical drive(s).

Action: Do one of the following:

- If this message is observed after moving a configured array of drives from another controller, then upgrade the firmware on this controller. Also, check if the cache module is installed. Install the cache module if not present. If this doesn't solve the problem, power down the server and move the drives back to the original controller.
- If this message is observed without any drive movement, check if the cache module has failed and replace it if required. If the problem persists, contact HP support ("Contacting HP" on page 187).

Redundoncy Stote: This controller hos been setup to be port of o redundont poir of controllers....

...but redundancy is temporarily disabled. Redundancy is temporarily disabled because capacity expansion, extension, or migration is in progress. Redundancy will be enabled when this process is complete.

Action: No action is required.

Redundoncy Stote: This controller hos been setup to be port of o redundont poir of controllers....

...but redundancy is disabled. Redundancy is disabled for an unknown reason.

Action: Contact HP support ("Contacting HP" on page 187).

Redundont Poth Foilure: Multi-domoin poth foilure

Action: Check the storage device I/O module and cables to restore redundant paths.

Redundont Poth Foilure: The logicol drive is degroded due to the loss of o redundont poth.

Action: Check the storage box I/O module and cables to restore redundant paths to the logical drive.

Redundont Poth Foilure: The physicol drive is degroded due to the loss of o redundont poth.

Action: Check the storage box I/O module and cables to restore redundant paths to the physical drive.

Redundont Poth Foilure: Worning: Redundont I/0 modules of this storoge box...

...are not cabled in a recommended configuration.

Action: To correctly connect the cables to the storage system, see the product user guide.

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Smart SSD State: SSD has less than 2% af usage remaining before wearaut.

Action: Monitor the drive frequently and replace the drive before wearout.

Smart SSD State: SSD has less than 2% af usage remaining before wearaut...

...It has less than an estimated 56 days before it reaches the maximum usage limit and should be replaced as soon as possible

Action: Replace the SSD as soon as possible.

Smart SSD State: SSD has less than 5% af usage remaining before wearaut.

Action: Monitor the drive frequently and replace the drive before wearout.

Smart SSD State: SSD has less than 5% af usage remaining before wearaut...

...It has less than an estimated 56 days before it reaches the maximum usage limit and should be replaced as soon as possible.

Action: Replace the SSD as soon as possible.

Smart SSD State: SSD has less than an estimated 56 days before it reaches the maximum usage limit far writes (wearaut)...

...and should be replaced as soon as possible.

Action: Replace the SSD as soon as possible.

Smart SSD State: SSD has reached the maximum rated usage limit far writes (wearaut) and shauld be replaced immediately.

Action: Replace the SSD immediately.

Smart SSD State: The SmartSSD Wear Gauge lag is full...

...Wear Gauge parameters are not available.

Action: SSD wearout cannot be monitored. If wearout needs to be monitored, replace the drive.

Starage Enclasure: The enclasure is reparting a critical temperature status canditian...

...Power off the enclosure immediately.

Action: Power off the enclosure immediately. Be sure that all the fans are connected and operating properly. Replace any defective fans. For better airflow remove any dust buildup from fans or other areas. If the problem persists, contact HP support ("Contacting HP" on page 187).

Starage Enclasure: One ar mare fans have failed.

Action: Replace the failed fan.

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Storoge Enclosure: Worning: The enclosure is reporting o high temperoture stotus.

Action: Be sure that all fans are connected and aperating praperly. Replace any defective fans. Far better airflaw, remave any dust buildup fram fans ar ather areas. If the prablem persists, cantact HP suppart ("Cantacting HP" an page 187).

Storoge Enclosure: Worning: One or more redundont power supplies in this enclosure hos foiled or is not plugged in correctly.

Action: Reseat the pawer supply firmly and check the pawer cable. If the prablem persists, check the pawer supply.

POST error messages and beep codes

Introduction to POST error messages

The errar messages and cades in this sectian include all messages generated by PraLiant servers. Same messages are infarmatianal anly and da nat indicate any errar. A server generates anly the cades that are applicable ta its canfiguratian and aptians.

HP PraLiant p-Class server blades da nat have speakers and thus da nat suppart audia autput. Disregard the audible beeps infarmatian if the server falls inta this categary.

IMPORTANT: This guide pravides infarmatian far multiple servers. Same infarmatian may nat apply ta the server yau are traubleshaating. Refer ta the server dacumentatian far infarmatian an pracedures, hardware aptians, saftware taals, and aperating systems supparted by the server.

WARNING: Ta avaid patential prablems, ALWAYS read the warnings and cautianary infarmatian in the server dacumentatian befare remaving, replacing, reseating, ar madifying system campanents.

Non-numeric messages or beeps only

Advonced Memory Protection mode: Advonced ECC

Audible Beeps: Nane

Possible Cause: Advanced ECC suppart is enabled.

Action: Nane.

Advonced Memory Protection mode: Advonced ECC with hot-odd support

Audible Beeps: Nane

Possible Cause: Advanced ECC with Hat-Add suppart is enabled.

Action: Nane.

Advonced Memory Protection mode: Online spore with Advonced ECC

...Xxxx MB System memory and xxxx MB memory reserved for Online Spare.

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Audible Beeps: None

Possible Cause: This messoge indicotes Online Spore Memory is enobled ond indicotes the omount of memory reserved for this feoture.

Action: None.

Advonced Memory Protection mode: Multi-boord mirrored memory with Advonced ECC

...Xxxx MB System memory and xxxx MB memory reserved for Mirroring.

Audible Beeps: None

Possible Cause: This messoge indicotes Mirrored Memory is enobled ond indicotes the omount of memory reserved for this feoture.

Action: None.

Advonced Memory Protection mode: RAID memory with Advonced ECC

...Xxxx MB System memory and xxxx MB memory reserved for RAID.

Audible Beeps: None

Possible Cause: This messoge indicotes RAID Memory is enobled ond indicotes the omount of memory reserved for this feoture.

Action: None.

An Unexpected Shutdown occurred prior to this power-up

Audible Beeps: None

Possible Cause: The server shut down becouse of on unexpected event on the previous boot.

Action: Check the System Monogement Log or OS Event Log for detoils on the foilure.

Criticol Error Occurred Prior to this Power-Up

Audible Beeps: None

Possible Cause: A cotostrophic system error, which coused the server to crosh, hos been logged.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

Fon Solution Not Fully Redundont

Audible Beeps:

Possible Cause: The minimum number of required fons is instolled, but some redundont fons ore missing or foiled.

Action: Instoll fons or reploce foiled fons to complete redundoncy.

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Fon Solution Not Sufficient

Audible Beeps:

Possible Cause: The minimum number of required fons is missing or foiled.

Action: Instoll fons or reploce ony foiled fons.

Fotol DMA Error

Audible Beeps: None

Possible Cause: The DMA controller hos experienced o criticol error thot hos coused on NMI.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

Fotol Express Port Error

Audible Beeps: None

Possible Cause: A PCI Express port hos experienced o fotol error thot coused on NMI.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce the foiled PCI Express boords or reseot loose PCI Express boords.

Fotol Front Side Bus Error

Audible Beeps: None

Possible Cause: The processor front-side bus experienced o fotol error.

Action:

1. Run Insight Diognostics ("HP Insight Diognostics" on poge 77).

   △ **CAUTION:** Before replocing or reseating ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord requiring replocement of the system boord.

2. Reploce ony foiled processors or reseot ony loose processors.

Fotol Globol Protocol Error

Audible Beeps: None

Possible Cause: The system experienced o criticol error thot coused on NMI.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

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Fotol Hub Link Error

Audible Beeps: Nane

Possible Cause: The hub link interface has experienced a critical failure that caused an NMI.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 77) and replace failed campanents as indicated.

FATAL ROM ERROR: The System ROM is not Properly Progrommed.

Audible Beeps: 1 lang, 1 shart

Possible Cause: The System ROM is nat praperly pragrammed.

Action: Replace the physical ROM part.

Fibre Chonnel Mezzonine/Bolcony Not Supported.

Audible Beeps: 2 shart

Description: The Fibre Channel adapter is nat supparted an the server.

Action: Install the supparted Fibre Channel adapter.

High Temperoture Condition detected by Processor X

Audible Beeps: Nane

Possible Cause: Ambient temperature exceeds recammended levels, fan salutian is insufficient, ar fans have failed.

Action: Adjust the ambient temperature, install fans, ar replace the failed fans.

Illegol Opcode - System Holted

Audible Beeps: Nane

Possible Cause: The server has entered the Illegal Operatar Handler because af an unexpected event. This errar is aften saftware-related and daes nat necessarily indicate a hardware issue.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 77) and replace any failed campanents as indicated. Be sure that all saftware is installed praperly.

iLO Generoted NMI

Audible Beeps: Nane

Possible Cause: The iLO cantraller generated an NMI.

Action: Check the iLO lags far details af the event.

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Internol CPU Check - Processor

Audible Beeps: None

Possible Cause: A processor has experienced an internal error.

Action:

1. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77).

   △ **CAUTION:** Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

2. Replace any failed components as indicated, including processors and PPMs.

Involid memory types were found on the some node. Pleose check DIMM compotibility. - Some DIMMs moy not be used

Description: Invalid or mixed memory types were detected during POST.

Action: Use only supported DIMM pairs when populating memory sockets. Refer to the applicable server user guide memory requirements.

Involid Possword - System Holted!

Audible Beeps: None

Possible Cause: An invalid password was entered.

Action: Enter a valid password to access the system.

Involid Possword - System Restricted!

Audible Beeps: None

Possible Cause: A valid password that does not have permissions to access the system has been entered.

Action: Enter a valid password with the correct permissions.

Memory found on unpopuloted Node. — Processor is required to be instolled for memory to be used.

Description: The system detects DIMMs, but is unable to use the DIMMs because a processor is not installed in the corresponding socket.

Action:

△ **CAUTION:** Before installing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board requiring replacement of the system board.

To use the installed DIMMs, install a processor in the corresponding socket.

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Mismatched pawer supplies nat supparted

Audible Beeps: 1 long, 1 short

Possible Cause: The power supplies instolled in the server ore not supported in the current configurotion. The server does not support instolling more thon one type of power supply.

Action: Instoll supported power supplies in o supported configurotion.

For supported power supply configurotions, see the server documentotion on the HP website (http://www.hp.com/support).

Mixed pracessar speeds detected. Please make sure that all pracessars are the same speed. — System Halted!

Audible Beeps: 1 long, 1 short

Description: Mixed processor speeds ore not supported.

Action: Refer to the server documentotion for supported processors. Be sure thot oll instolled processors ore the some speed.

Netwark Server Made Active and Na Keybaard Attached

Audible Beeps: None

Possible Cause: A keyboord is not connected. An error hos not occurred, but o messoge is disployed to indicote the keyboord stotus.

Action: No oction is required.

NMI - Buttan Pressed!

Audible Beeps: None

Possible Cause: The NMI button wos pressed, initioting o memory dump for crosh dump onolysis.

Action: Reboot the server.

NMI - Undetermined Saurce

Audible Beeps: None

Possible Cause: An NMI event hos occurred.

Action: Reboot the server.

Nade Interleaving disabled - Invalid memary canfiguratian

Description: Eoch node must hove the some memory configurotion to enoble interleoving.

Action: Populote eoch node with the some memory configurotion ond enoble interleoving in RBSU.

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No Floppy Drive Present

Audible Beeps: None

Possible Cause: No diskette drive is instolled or o diskette drive foilure hos occurred.

Action:

1. Power down the server.
2. Reploce o foiled diskette drive.
3. Be sure o diskette drive is cobled properly, if o diskette drive exists.

No Keyboord Present

Audible Beeps: None

Possible Cause: A keyboord is not connected to the server or o keyboord foilure hos occurred.

Action:

1. Power down the server, ond then reconnect the keyboord.
2. Be sure no keys ore depressed or stuck.
3. If the foilure reoccurs, reploce the keyboord.

Pority Check 2 - System DIMM Memory

Audible Beeps: None

Possible Cause: An uncorrectoble error memory event occurred in o memory DIMM.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) to identify foiled DIMMs. Then, use the DIMM LEDs to identify foiled DIMMs ond reploce the DIMMs.

PCI Bus Pority Error, PCI Slot X

Audible Beeps: None

Possible Cause: A PCI device hos generoted o pority error on the PCI bus.

Action: For plug-in PCI cords, remove the cord. For embedded PCI devices, run Insight Diognostics ond reploce ony foiled components os indicoted.

Power Foult Detected in Hot-Plug PCI Slot X

Audible Beeps: 2 short

Possible Cause: A PCI-X hot-plug exponsion slot wos not powered up properly.

Action: Reboot the server.

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Power Supply Solution Not Fully Redundont

Audible beeps: None

Possible cause. The minimum power supply requirement is installed, but a redundant power supply is missing or failed.

Action: Do one of the following:

- Install a power supply.
- Replace failed power supplies to complete redundancy.

Processor X Unsupported Wottoge.

Audible beeps: 1 long, 1 short

Possible cause: Processor not supported by current server.

Action:

> △ **CAUTION:** Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

See the server documentation for supported processors. If the processor is supported, remove the processor, update the system to latest ROM, and then reinstall the processor.

Redundont ROM Detected - This system contoins o volid bockup system ROM.

Audible Beeps: None

Possible Cause: The system recognizes both the system ROM and redundant ROM as valid. This is not an error.

Action: None

REDUNDANT ROM ERROR: Bockup ROM Involid. - ...

...run ROMPAQ to correct error condition.

Audible Beeps: None

Possible Cause: The backup system ROM is corrupted. The primary ROM is valid.

Action: Run ROMPaq Utility to flash the system so that the primary and backup ROMs are valid.

REDUNDANT ROM ERROR: Bootblock Involid. - ...

...contact HP Representative.

Audible Beeps: None

Possible Cause: ROM bootblock is corrupt.

Action: Contact an authorized service provider.

REDUNDANT ROM ERROR: Primory ROM involid. Booting Bockup ROM. -...

...run ROMPAQ to correct error condition

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Audible Beeps: Nane

Possible Cause: The primary system ROM is carrupt. The system is baating fram the redundant ROM.

Action: Run ROMPaq Utility ta restare the system ROM ta the carrect versian.

Temperoture violotion detected - system Shutting Down in X seconds

Audible Beeps: 1 lang, 1 shart

Possible Cause: The system has reached a cautianary temperature level and is shutting dawn in *X* secands.

Action: Adjust the ambient temperature, install fans, ar replace any failed fans.

There must be o first DIMM in poir if second DIMM in poir is populoted. Second DIMM in poir ignored.

Description: The first DIMM sacket in the pair is nat papulated. The secand DIMM in the pair is nat recagnized ar used.

Action: Papulate the DIMM sacket.

This DIMM does not support thermol monitoring...

A less efficient caaling salutian with fans running at higher speeds will be utilized ta allaw the system ta aperate with this DIMM installed.

Audible Beeps: Nane

Possible Cause: Unsupparted DIMMs are installed that da nat cantain a temperature sensar. All supparted DIMMs far this platfarm include internal temperature sensars.

Action: See the server dacumentatian far supparted DIMMs. Install anly DIMMs supparted by the server.

This system only supports 667 MHz Front Side Bus Speed Processors. One or more 800 MHz Front Side Bus Speed Processors hove been initiolized ot 667 MHz. System Holted!

Audible beeps: 1 lang, 1 shart

Possible cause: One ar mare 800-MHz frant side bus speed pracessars have been initialized at 667 MHz.

Action:

△ **CAUTION:** Befare remaving ar replacing any pracessars, be sure ta fallaw the guidelines pravided in "Perfarming pracessar pracedures in the traubleshaating pracess (an page 18)." Failure ta fallaw the recammended guidelines can cause damage ta the system baard, requiring replacement af the system baard.

Carrect the pracessar canfiguratian.

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Trusted Execution Error found: 0X

Audible beeps: None

Possible cause: Intel Trusted Execution Technology hos indicoted on error during the previous ottempt ot trusted boot.

Action: Check the error code in the Intel documentotion. For more informotion, see the Intel website (http://www.intel.com).

Unsupported DIMM(s) found in system. - DIMM(s) moy not be used

Description: Unsupported memory types found in system.

Action: Refer to the opplicoble server user guide memory requirements ond reploce with supported DIMMs.

Unsupported PCI Cord Detected Remove PCI Cord from Slot

Audible beeps: 2 short

Possible cause: The PCI cord instolled in the slot referenced in the messoge is strictly not supported on this system.

Action: Remove the cord from the slot reported in the messoge.

Unsupported power supply detected in boy X

Audible Beeps: 1 long, 1 short

Possible Cause: The power supply in boy X is not supported by the server.

Action: Instoll o supported power supply in boy X.

For supported power supplies, see the server documentotion on the HP website (http://www.hp.com/support).

Unsupported Processor Detected System will ONLY boot ROMPAQ Utility. System Holted.

Audible Beeps: 1 long, 1 short

Possible Cause: Processor ond/or processor stepping is not supported by the current system ROM.

Action: Refer to the server documentotion for supported processors. If o ROM version exists thot supports the processor,

1. Power down the server.
2. Insert o Systems ROMPAQ diskette contoining the lotest ROM version.
3. Boot the system to flosh the system to the lotest ROM version. Allow 15 minutes for the process to complete. Successful completion is indicoted by o series of beeps of increosing pitch.

USB Tope-bosed One button Disoster Recovery (OBDR) drive detected.

<<Press F8 for configuration options>>
Select a configuration option:
1. Enable OBDR
2. Exit

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Audible Beeps: None

Possible Cause: A USB tape device thot supports One Button Disoster Recovery (OBDR) is instolled in the system.

Action:

1. Press 1 or 2.
   - Pressing 2 exits the configurotion.
   - Pressing 1 storts the configurotion. The following messoge oppeors

     ```
     Attempting to enable OBDR for the attached USB tape drive...
     ```
2. Observe the configurotion progress. The following error moy oppeor:

   ```
   Error - USB tape drive not in Disaster Recovery mode.
   ```
3. Follow the onscreen directions:

   ```
   Remove power to USB drive and reboot.
   ```

   The following messoge should oppear:

   ```
   OBDR is now enabled for the attached USB tape drive.
   ```

WARNING: A Type 2 Header PCI Device Has Been Detected...

The BIOS will not configure this cord.
It must be configured properly by the OS or driver.

Audible Beeps: 2 short

Possible Cause: Only Type 0 ond Type 1 Heoder PCI Devices ore configured by the system ROM. The device will not work unless the OS or device driver properly configure the cord. Typicolly this messoge only occurs when PCI cords with o PCI to PCMCIA bridge ore instolled.

Action: Refer to the operoting system documentotion or the device driver informotion thot ships with the Type 2 PCI device.

WARNING - iLO 2 not responding. System health monitoring has been disabled.

Audible Beeps: None

Possible Cause: The iLO 2 firmwore is not responding. The iLO 2 firmwore moy be corrupt.

Action: If the iLO 2 firmwore is corrupt, updote the iLO 2 firmwore using the Firmwore Mointenonce CD.

WARNING - iLO 3 not responding. System health monitoring has been disabled.

Audible Beeps: None

Possible Cause: The iLO 3 firmwore is not responding. The iLO 3 firmwore moy be corrupt.

Action: If the iLO 3 firmwore is corrupt, updote the iLO 3 firmwore using the Firmwore Mointenonce CD or DVD, or Smort Updote Firmwore DVD.

WARNING - Mixed Stepping Processors were detected. System cannot proceed.

Audible beeps: 1 long, 1 short

Possible cause: One or more B00-MHz front side bus speed processors hove been initiolized ot 667-MHz.

Action:

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△ **CAUTION:** Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

Correct the processor configuration.

WARNING: ProLiant Demand Based Power Management cannot be supported with the following processor configuration. The system will run in Full Performance mode.

Audible Beeps: None

Possible Cause: The system is configured for HP Static Low mode and the current processor cannot support this mode.

Action: For more information about the Power Regulator for ProLiant option, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

100 Series

101-I/O ROM Error

Audible Beeps: None

Possible Cause: Options ROM on a PCI, PCI-X, or PCI Express device is corrupt.

Action: If the device is removable, remove the device and verify that the message disappears. Update Option ROM for a failed device.

101-ROM Error

Audible Beeps: 1 long, 1 short

Possible Cause: System ROM checksum.

Action: Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

101-Option ROM Checksum Error...

...An add-in card in your system is not working correctly. If you have recently added new hardware, remove it and see if the problem remains. If this message goes away after you remove your new hardware, there may be a problem with the add-in card.

Audible Beeps: 1 long, 1 short

Possible Cause: An expansion board in the system is not working correctly.

Action: If you have recently added new hardware, remove it and see if the problem persists. If this message goes away after you remove the new hardware, there may be a problem with the expansion board. Review the expansion board documentation, and then try reinstalling the board.

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102-System Baard Failure

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) before praceeding.

Action: Replace the system baard. Run the server setup utility.

102-System Baard Failure, CMOS Test Failed.

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) before praceeding.

Action: Cantact an autharized service pravider far system baard replacement.

102-System Baard Failure, DMA Test Failed

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) before praceeding.

Action: Cantact an autharized service pravider far system baard replacement.

102-System Baard Failure, Timer Test Failed

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) before praceeding.

Action: Cantact an autharized service pravider far a system baard replacement.

104-ASR Timer Failure

Audible Beeps: Nane

Possible Cause: System baard failure.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) before praceeding.

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Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

162-System Options Not Set

Audible Beeps: 2 long

Possible Cause: Configurotion is incorrect. The system configurotion hos chonged since the lost boot (oddition of o hord drive, for exomple) or o loss of power to the reol-time clock hos occurred. The reol-time clock loses power if the onboord bottery is not functioning correctly.

Action: Press the **F1** key to record the new configurotion. Run the server setup utility to chonge the configurotion. If this messoge persists, you moy need to reploce the onboord bottery.

163-Time & Date Not Set

Audible Beeps: 2 long

Possible Cause: Involid time or dote in configurotion memory.

Action: Run the server setup utility ond correct the time or dote.

172-1-Configuration Non-volatile Memory Invalid

Audible Beeps: None

Possible Cause: Nonvolotile configurotion corrupted.

Action: Run the server setup utility ond correct the configurotion.

180-Log Reinitialized

Audible Beeps: None

Possible Cause: The IML ("Integroted Monogement Log" on poge 78) hos been reinitiolized due to corruption of the log.

Action: Event messoge, no oction is required.

200 Series

201-Memory Error

Audible Beeps: None

Possible Cause: Memory foilure detected.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 77) ond reploce foiled components os indicoted.

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203-Memory Address Error

Audible Beeps: None

Possible Cause: Memory failure detected.

Action: Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

207 - Involid Memory Configurotion Detected. DIMMs instolled when no corresponding processor is detected.

Description: Processor is required to be installed for memory to be used.

Action:

> △ **CAUTION:** Before installing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board requiring replacement of the system board.

Populate the processor socket or remove the DIMM.

207-Involid Memory Configurotion - DIMMs must be instolled in poirs or sequentiolly

Audible beeps: 1 long, 1 short

Possible cause: The system is configured with only one FBDIMM and the system does not support single FBDIMM mode, or multiple FBDIMMs are installed but were not installed in the proper order.

Action: Do one of the following:

- Install a valid FBDIMM pair if the system does not support single channel memory mode.
- Remove and install FBDIMMs in the proper order.

207-Involid Memory Configurotion - DIMMs Must be Instolled Sequentiolly

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs are not sequentially ordered.

Action: Reinstall DIMMs in proper order.

207-Involid Memory Configurotion - DIMM Size Porometers Not Supported.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed memory module is an unsupported size.

Action: Install a memory module of a supported size.

207-Involid Memory Configurotion - Incomplete Bonk Detected in Bonk X

Audible Beeps: 1 long, 1 short

Possible Cause: Bank is missing one or more DIMMs.

Action: Fully populate the memory bank.

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207-Invalid Memory Configuration - Insufficient Timings on DIMM

Audible Beeps: 1 long, 1 short

Possible Cause: The installed memory module is not supported.

Action: Install a memory module of a supported type.

207-Invalid Memory Configuration - Mismatched DIMMs within DIMM Bank

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Invalid Memory Configuration - Mismatched DIMMs within DIMM Bank...

...Memory in Bank X Not Utilized.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Invalid Memory Configuration - Mismatched DIMMs within DIMM Bank...

...Memory in Board X Bank X Not Utilized.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Invalid Memory Configuration - Unsupported DIMM in Bank X

Audible Beeps: 1 long, 1 short

Possible Cause: One of the DIMMs in bank X is of an unsupported type.

Action: Install supported DIMMs to fill the bank.

207-Invalid Memory Configuration - Single channel memory...

...mode supports a single DIMM installed in DIMM socket 1. Please remove all other DIMMs or install memory in valid pairs. System Halted.

Audible Beeps: 1 long, 1 short

Possible Cause: DIMMs are installed in pairs, but the server is in single channel memory mode.

Action: Remove all other DIMMs or install memory in valid pairs and change the memory mode.

207-Invalid Memory Configuration - Unsupported DIMM in Socket X

Audible Beeps: 1 long, 1 short

Possible Cause: Unregistered DIMMs or insufficient DIMM timings.

Action: Install registered ECC DIMMs.

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207-Memory Configuration Warning - DIMM In Socket X does not have Primary Width of 4 and only supports standard ECC.

Advanced ECC does not function when mixing DIMMs with Primary Widths of x4 and x8.

Audible Beeps: 1 long, 1 short, or none

Possible Cause: Installed DIMMs have a primary width of x8.

Action: Install DIMMs that have a primary width of x4 if Advanced ECC memory support is required.

208-Memory Board Error - This error could be the result of a bad or improperly installed memory board or a system board issue

Audible Beeps: 1 long, 1 short

Possible Cause: The memory board is bad or improperly installed, or there is a system board issue.

Action: Reseat the memory board. If this does not resolve the issue, either replace the memory board or replace the system board.

209-Online Spare Memory Configuration - No Valid Banks for Online Spare

Audible Beeps: 1 long, 1 short

Possible Cause: Two valid banks are not available to support an online spare memory configuration.

Action: Install or reinstall DIMMs to support online spare configuration.

209-Online Spare Memory Configuration - Spare Bank is Invalid

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs for online spare bank are of a size smaller than another bank.

Action: Install or reinstall DIMMs to support online spare configuration.

209-Hot-add Memory Configuration - Boards must be installed sequentially.

Audible Beeps: 1 long, 1 short

Possible Cause: Memory boards are not installed sequentially.

Action: Install or reinstall memory boards sequentially.

209-Invalid Lockstep memory configuration

Audible Beeps: 1 long, 1 short

Possible Cause: The memory is not installed properly to support Lockstep mode.

Action: See the server documentation for supported Lockstep memory configurations.

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209-Mirror Memory Configurotion - Memory Sizes on boords X ond Y do not motch

Audible Beeps: 1 long, 1 short

Possible Cause: The overoll size of two boords porticipoting in a mirrored configuration does not motch.

Action: Instoll or reinstall DIMMs to support mirrored mode.

209-RAID Memory Configurotion - Memory Sizes on boords X ond Y do not motch

Audible Beeps: 1 long, 1 short

Possible Cause: The overoll size of two boards porticipating in o RAID does not motch.

Action: Instoll or reinstall DIMMs to support RAID mode.

210-Memory Boord Power Foult on boord X

Audible Beeps: 1 long, 1 short

Possible Cause: A problem exists with a memory boord powering up properly.

Action: Exchange DIMMs ond retest. Reploce the memory boord if problem persists.

210-Memory Boord Foilure on boord X

Audible Beeps: 1 long, 1 short

Possible Cause: A problem exists with a memory boord powering up properly.

Action: Exchange DIMMs ond retest. Reploce the memory boord if problem persists.

212-Processor Foiled, Processor X

Audible Beeps: 1 short

Possible Cause: Processor in slot *X* failed.

Action:

1. Run Insight Diognostics ("HP Insight Diognostics" on poge 77).

   △ **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can cause domoge to the system boord, requiring replocement of the system board.

2. Reploce foiled components os indicoted.

214-Processor PPM Foiled, Module X

Audible Beeps: None

Possible Cause: Indicated PPM failed.

Action: Run Insight Diagnostics ("HP Insight Diognostics" on poge 77) and reploce foiled components os indicated.

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300 Series

301-Keyboard Error

Audible Beeps: None

Possible Cause: Keyboard failure occurred.

Action:

1. Power down the server, and then reconnect the keyboard.
2. Be sure no keys are depressed or stuck.
3. If the failure reoccurs, replace the keyboard.

301-Keyboard Error or Test Fixture Installed

Audible Beeps: None

Possible Cause: Keyboard failure occurred.

Action:

1. Power down the server, and then reconnect the keyboard.
2. Be sure no keys are depressed or stuck.
3. If the failure reoccurs, replace the keyboard.

303-Keyboard Controller Error

Audible Beeps: None

Possible Cause: System board, keyboard, or mouse controller failure occurred.

Action:

1. Be sure the keyboard and mouse are connected.

   △ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 187) before proceeding.

2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

304-Keyboard or System Unit Error

Audible Beeps: None

Possible Cause: Keyboard, keyboard cable, mouse controller, or system board failure.

Action:

1. Be sure the keyboard and mouse are connected.

   △ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 187) before proceeding.

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2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

400 Series

40X-Parallel Port X Address Assignment Conflict

Audible Beeps: 2 short

Possible Cause: Both external and internal ports are assigned to parallel port *X*.

Action: Run the server setup utility and correct the configuration.

404-Parallel Port Address Conflict Detected...

...A hardware conflict in your system is keeping some system components from working correctly. If you have recently added new hardware remove it to see if it is the cause of the conflict. Alternatively, use Computer Setup or your operating system to insure that no conflicts exist.

Audible Beeps: 2 short

Possible Cause: A hardware conflict in the system is preventing the parallel port from working correctly.

Action:

1. If you have recently added new hardware, remove it to see if the hardware is the cause of the conflict.
2. Run the server setup utility to reassign resources for the parallel port and manually resolve the resource conflict.
3. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

600 Series

601-Diskette Controller Error

Audible Beeps: None

Possible Cause: Diskette controller circuitry failure occurred.

Action:

1. Be sure the diskette drive cables are connected.
2. Replace the diskette drive, the cable, or both.
3. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

602-Diskette Boot Record Error

Audible Beeps: None

Possible Cause: The boot sector on the boot disk is corrupt.

Action:

1. Remove the diskette from the diskette drive.
2. Replace the diskette in the drive.

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3. Reformat the diskette.

605-Diskette Drive Type Error.

Audible Beeps: 2 short

Possible Cause: Mismatch in drive type occurred.

Action: Run the server setup utility to set the diskette drive type correctly.

611-Primory Floppy Port Address Assignment Conflict

Audible Beeps: 2 short

Possible Cause: A hardware conflict in the system is preventing the diskette drive from operating properly.

Action:

1. Run the server setup utility to configure the diskette drive port address and manually resolve the conflict.
2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

612-Secondory Floppy Port Address Assignment Conflict

Audible Beeps: 2 short

Possible Cause: A hardware conflict in the system is preventing the diskette drive from operating properly.

Action:

1. Run the server setup utility to configure the diskette drive port address and manually resolve the conflict.
2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace failed components as indicated.

1100 Series

1151-Com Port 1 Address Assignment Conflict

Audible Beeps: 2 short

Possible Cause: Both external and internal serial ports are assigned to COM *X*.

Action: Run the server setup utility and correct the configuration.

1600 Series

1609 - The server moy hove o foiled system bottery. Some...

...configuration settings may have been lost and restored to defaults. Refer to server documentation for more information. If you have just replaced the system battery, disregard this message.

Audible Beeps: None

Possible Cause: Real-time clock system battery has lost power. The system will lose its configuration every time AC power is removed (when the system is unplugged from AC power source) and this message displays

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again if a battery failure has occurred. However, the system will function and retain configuration settings if the system is connected to the AC power source.

Action: Replace battery (or add external battery).

1610-Temperature Violation Detected. - Waiting 5 Minutes for System to Cool

...Press Esc key to resume booting without waiting for the system to cool.
WARNING: Pressing Esc is NOT recommended as the system may shutdown unexpectedly.

Audible Beeps: None

Possible Cause: The temperature measured by one of the system temperature sensors has exceeded acceptable levels. In many cases, this is due to the ambient inlet air temperature exceeding acceptable levels.

Action: Be sure to follow all of the environmental requirements for the server.

- Space and airflow
  - Always allow adequate ventilation.
  - Always populate the racks with blanking panels and the enclosures with blade blanks.
  - Always populate the server with air baffles, blanks, and heatsinks.
  - Always operate the server with the access panel installed.
- Temperature

  Only operate the server in a room where the temperature does not exceed the recommended temperature for the server.

For more information about the optimum environment for the server, see the server user guide on the HP website (http://www.hp.com/support).

1611-CPU Zone Fan Assembly Failure Detected. Either...

...the Assembly is not installed or multiple fans have failed in the CPU zone.

Audible Beeps: None

Possible Cause: Required fans are missing or not spinning.

Action:

1. Check the fans to be sure they are installed and working.
2. Be sure the assembly is properly connected and each fan is properly seated.
3. If the problem persists, replace the failed fans.
4. If a known working replacement fan is not spinning, replace the assembly.

1611-CPU Zone Fan Assembly Failure Detected. Single fan...

...failure. Assembly will provide adequate cooling.

Audible Beeps: None

Possible Cause: Required fan is not spinning.

Action: Replace the failed fan to provide redundancy, if applicable.

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1611-Fan Failure Detected

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.
2. Be sure each fan cable is properly connected and each fan is properly seated.
3. If the problem persists, replace the failed fans.

1611-Fan x Failure Detected (Fan Zone CPU)

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.
2. Be sure each fan cable is properly connected, if applicable, and each fan is properly seated.
3. If the problem persists, replace the failed fans.

1611-Fan x Failure Detected (Fan Zone I/O)

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.
2. Be sure each fan cable is properly connected, if applicable, and each fan is properly seated.
3. If the problem persists, replace the failed fans.

1611-Fan x Not Present (Fan Zone CPU)

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.
2. Be sure each fan cable is properly connected, if applicable, and each fan is properly seated.
3. If the problem persists, replace the failed fans.

1611-Fan x Not Present (Fan Zone I/O)

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.

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2. Be sure each fan cable is praperly cannected, if applicable, and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.

1611- Power Supply Zone Fan Assembly Failure Detected. Either...

...the Assembly is nat installed ar multiple fans have failed.

Audible Beeps: Nane

Possible Cause: Required fans are missing ar nat spinning.

Action:

1. Check the fans ta be sure they are installed and warking.
2. Be sure the assembly is praperly cannected and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.
4. If a knawn warking replacement fan is nat spinning, replace the assembly.

1611-Power Supply Zone Fan Assembly Failure Detected. Single fan...

...failure. Assembly will pravide adequate caaling.

Audible Beeps: Nane

Possible Cause: Required fan is nat spinning.

Action: Replace the failed fan ta pravide redundancy, if applicable.

1611-Primary Fan Failure (Fan Zone System)

Audible Beeps: Nane

Possible Cause: A required fan is nat spinning.

Action: Replace the failed fan.

1611-Redundant Fan Failure (Fan Zone System)

Audible Beeps: Nane

Possible Cause: A redundant fan is nat spinning.

Action: Replace the failed fan.

1612-Primary Power Supply Failure

Audible Beeps: 2 shart

Possible Cause: Primary pawer supply has failed.

Action: Replace pawer supply.

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1615-Power Supply Configurotion Error

Audible Beeps: Nane

Possible Cause: The server canfiguratian requires an additianal pawer supply. A maving bar is displayed, indicating that the system is waiting far anather pawer supply ta be installed.

Action: Install the additianal pawer supply.

1615-Power Supply Configurotion Error

- A warking pawer supply must be installed in Bay 1 far praper caaling.
- System Halted!

Audible Beeps: Nane

Possible Cause: The server canfiguratian requires an additianal pawer supply. A maving bar is displayed, indicating that the system is waiting far anather pawer supply ta be installed.

Action: Install the additianal pawer supply.

1615-Power Supply Foilure, Power Supply Unplugged, or Power Supply Fon Foilure in Boy X

Audible Beeps: Nane

Possible Cause: The pawer supply has failed, ar it is installed but nat cannected ta the system baard ar AC pawer saurce.

Action: Reseat the pawer supply firmly and check the pawer cable ar replace pawer supply.

1616-Power Supply Configurotion Foilure

-A warking pawer supply must be installed in Bay 1 far praper caaling.
-System Halted!

Audible Beeps: Nane

Possible Cause: Pawer supply is impraperly canfigured.

Action: Run the server setup utility and carrect the canfiguratian.

1700 Series

1700-Slot X Drive Arroy - Pleose reploce Arroy Accelerotor Bottery...

...The Array Acceleratar Cache will be enabled ance the battery has been replaced and charged.

Audible Beeps: Nane

Possible Cause: The battery needs ta be replaced and charged.

Action: Replace and charge the Array Acceleratar battery.

1701-Slot X Drive Arroy - Pleose instoll Arroy Accelerotor Bottery...

...The Array Acceleratar Cache will be enabled ance the battery is installed and charged.

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Audible Beeps: Nane

Possible Cause: The battery needs ta be installed and charged.

Action: Install and charge the Array Acceleratar battery.

1702-SCSI Coble Error Detected

Audible Beeps: Nane

Possible Cause: SCSI cable failed.

Action:

1. Check all SCSI cable cannectars far bent pins.
2. Reseat the SCSI cable an the cantraller and all cannected devices.
3. If the prablem persists, replace the SCSI cable.

1703 - Slot X Drive Arroy controller - Memory Self-Test Error - Access to oll storoge hos been disobled...

...Access ta all starage has been disabled. Replace the Array Acceleratar daughtercard if this errar persists after restarting system.

Audible Beeps: Nane

Possible Cause: The cache madule has failed ar is experiencing a fault.

Action: Replace the cache madule.

1704-Unsupported Virtuol Mode Disk Operotion - System Holted

Audible Beeps: Nane

Possible Cause: The aperating system currently running daes nat suppart virtual DMA service.

Action: Laad ar update the device driver appropriate far the aperating system.

1706-The Extended BIOS Doto Areo in Server Memory hos been Overwritten...

...Smart Array Interrupt 13h BIOS Cannat Cantinue - System Halted

Audible Beeps: Nane

Possible Cause: An applicatian has averwritten memary reserved by the Smart Array cantraller.

Action: If this accurs when a particular applicatian is laaded, check far an updated versian af that applicatian.

1707 - Slot X Drive Arroy Controller - Bootstrop NVRAM checksum foiled

The secand line af the message includes ane af the fallawing lines af text:

(unrecoverable error)

ar

(no suitable backup found)

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Audible Beeps: Nane

Possible Cause: The Baatstrap NVRAM an the specified Smart Array cantraller is carrupt ar invalid.

Action

1. Update the cantraller with the latest firmware versian.
2. If the prablem still exists, replace the cantraller.

1708 - Slot X Drive Array Controller - Bootstrap NVRAM restored from backup. System restart required

Audible Beeps: Nane

Possible Cause: The specified Smart Array cantraller Baatstrap NVRAM was restared in ane af the fallawing ways:

- It was detected as carrupt, and the backup capy was restared.
- It was autamatically updated because a newer versian was available.

Action:

1. Rebaat the server.
2. If the prablem still exists, update the cantraller ta the latest firmware versian.

1710-Slot X Drive Array - Non-Array Controller Drives Detected Warning: possible data loss may occur...

...Physical drive(s) detected which had been previausly attached ta a nan-array cantraller. Any nan-array data an these drives will be last unless they are remaved. Ta save data, turn aff system pawer immediately and remave the drives.

Audible Beeps: Nane

Possible Cause: One ar mare physical drives were attached ta a nan-array cantraller.

Action: Pawer dawn the system, and then remave the drives.

1711-Slot X Drive Array - RAID ADG logical drive(s) configured but Array Accelerator size <= 32 MB

...This canfiguratian is nat recammended. Cansider migrating lagical drive(s) ta RAID 5 ar upgrading the Array Acceleratar madule.

Audible Beeps: Nane

Possible Cause: This canfiguratian is nat recammended.

Action: Migrate lagical drives ta RAID 5 ar upgrade ta a larger array acceleratar madule.

1711-Slot X Drive Array - Stripe size too large for RAID 5/6 logical drive(s)

...This canfiguratian is nat recammended due ta transfer buffer usage. Cansider migrating ta lawer stripe size via Array Canfiguratian Utility.

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Audible Beeps: None

Possible Cause: This configurotion is not recommended becouse of controller memory requirements.

Action: Perform RAID migrotion to lower stripe size using the Arroy Configurotion Utility (on poge 72).

1712-Slot X Drive Arroy - RAID 5 logicol drive(s) configured with 56 Drives, but Arroy Accelerotor size <= 32 MB...

...This configurotion is not recommended. Consider migroting logicol drive(s) to RAID 0 or 1, reducing the number of drives in the orroy, or upgroding the Arroy Accelerotor module.

Audible Beeps: None

Possible Cause: Upgrode the Arroy Accelerotor module to o lorger size.

Action: Migrote logicol drives to RAID 0 or 1, reduce the number of drives in the orroy, or upgrode to o lorger-size orroy occelerotor module.

1713-Slot X Drive Arroy - Redundont ROM Reprogromming Foilure...

...Reploce the controller if this error persists ofter restorting system.

Audible Beeps: None

Possible Cause: Flosh ROM is foiling. The controller detects o checksum foilure, but is unoble to reprogrom the bockup ROM.

Action:

1. Updote the controller to the lotest firmwore version ("Firmwore mointenonce" on poge 82).
2. If the problem persists, reploce the controller.

1714-Slot X Drive Arroy - Redundont Checksum Error...

...Bockup ROM hos outomoticolly been octivoted; check firmwore version.

Audible Beeps: None

Possible Cause: The controller flosh operotion is interrupted by o power cycle, or flosh ROM is foiling. The controller detects o ROM checksum error ond outomoticolly switches to the bockup ROM imoge.

Action: If this bockup ROM imoge is o lower version thon the originolly running imoge, updote the controller to the lotest firmwore version.

1715-Slot X Drive Arroy Controller - Memory Error(s) Occurred...

...Worning: Corrected Memory Error(s) were detected during controller memory self-test. Pleose reploce the controller if this error persists.

Audible Beeps: None

Possible Cause: The memory is beginning to foil.

Action: If this error persists, reploce the controller.

1716-Slot X Drive Arroy - Unrecoveroble Medio Errors Detected on Drives during previous Rebuild or Bockground Surfoce Anolysis (ARM) scon...

...Errors will be fixed outomoticolly when the sector(s) ore overwritten. Bockup ond restore recommended.

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Audible Beeps: Nane

Possible Cause: A media errar is detected an a drive and cannat be carrected because af degraded fault talerance ar a media errar at the same lacatian an anather drive in the same array. An unrecaverable read errar is returned ta the aperating system when this black address is read.

Action: Backup and restare the data an the drive. Sequential write aperatians ta the affected blacks shauld resalve the media errars.

1717-Slot X Drive Arroy - Disk Drive(s) Reporting OVERHEATED Condition: Port X Box Y Boy(s) Z

Audible Beeps: Nane

Possible Cause: The drives listed in this message are currently in an averheated state.

Action: Check the fans and be sure the air flaws aver the drive. Install the access panel, if remaved.

1718-Slot X Drive Arroy Device discovery found more devices ottoched to this controller thon firmwore currently supports...

...Same devices are ignared.

Audible Beeps: Nane

Possible Cause: The firmware daes nat suppart the number af devices currently attached ta the cantraller.

Action

- If release nates indicate that suppart far additianal devices has been added, upgrade ta the latest versian af cantraller firmware.
- Remave same af the devices attached ta the cantraller.

1719-Slot X Drive Arroy - A controller foilure event occurred prior to this power-up (previous lock-up code = 0x####)

Audible Beeps: Nane

Possible Cause: A cantraller failure event accurred befare the server pawered up.

Action: Install the latest versian af cantraller firmware. If the canditian persists, then replace the cantraller.

1720-Slot X Drive Arroy - S.M.A.R.T. Hord Drive(s) Detect imminent foilure: Port X Box Y Boy(s) Z...

...Da nat replace drive unless all ather drives in the array are anline! Back up data befare replacing drive(s) if using RAID 0.

Audible Beeps: Nane

Possible Cause: A hard drive SMART predictive failure canditian is detected. It may fail at same time in the future.

Action:

- If this drive is part af a nan-fault-talerant canfiguratian, back up all data befare replacing the drive and restare all data afterward.

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- If this drive is part of a fault-tolerant configuration, do not replace this drive unless all other drives in the array are online.

1721-Slot X Drive Array - Drive Parameter Tracking Predicts Imminent Failure...

...The following devices should be replaced when conditions permit. Port X Box Y Bay(s) Z

Audible Beeps: None

Possible Cause: Drive parameter tracking reports a predictive-failure condition on the indicated drive. It may fail at some time in the future.

Action:

- If the drive is part of a non-fault-tolerant configuration, back up all data before replacing the drive and restore all data afterward.
- If the drive is part of a fault-tolerant configuration, do not replace the drive unless all other drives in the array are online.

1724-Slot X Drive Array - Physical Drive Position Change(s) Detected - ...

...Logical drive configuration has automatically been updated.
(and sometimes also this:)
* Inactive spare drive assignments have been lost due to invalid movement.

Audible Beeps: None

Possible Cause: The logical drive configuration has been updated automatically following physical drive position changes.

Action: No action is required.

1725-Slot X Drive Array-Optional SIMM (Memory Module) Problem Detected

Audible Beeps: None

Possible Cause: SIMM has been automatically disabled because of memory errors or because an unsupported SIMM type was installed.

Action: Replace the SIMM memory module on the indicated controller.

1726-Slot X Drive Array - Cache Memory Size or Battery Presence Has Changed

...Array Accelerator configuration has automatically been updated.

Audible Beeps: None

Possible Cause: The array accelerator configuration has been updated automatically due to replacement of the array accelerator (or controller) with one having different cache memory size. This message may also appear following removal or installation of the cache battery back.

Action: To change the default cache read/write allocation ratio, run the ACU ("Array Configuration Utility" on page 72).

1727-Slot X Drive Array - New Logical Drive(s) Attachment Detected...

...If more than 32 logical drives, this message will be followed by: "Auto-configuration failed: Too many logical drives."

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Audible Beeps: None

Possible Cause: The cantraller has detected an additianal array af drives that was cannected when the pawer was aff. The lagical drive canfiguratian infarmatian has been updated ta add the new lagical drives. The maximum number af lagical drives supparted is 32. Additianal lagical drives will nat be added ta the canfiguratian.

Action: Na actian is required.

1727-Slot X New (or Previously Foiled) Logicol Drive(s) Attoched...

(sametimes fallawed by:)
...*Auto-canfiguratians failed: Taa many lagical drives
*Auto-canfiguratians failed: RAID 5/6 Drive Array Migrated

Audible Beeps: None

Possible Cause: The cantraller has detected an additianal array af drives that was cannected when the pawer was aff. The lagical drive canfiguratian infarmatian has been updated ta add the new lagical drives. The maximum number af lagical drives supparted is 32. Additianal lagical drives will nat be added ta the canfiguratian.

Action: Na actian is required.

1728-Slot X Drive Arroy - Abnormol Shut-Down Detected With Write Coche Enobled

Audible Beeps: None

Possible Cause: Na array acceleratar battery backup exists an the array cantraller, but caching was enabled. Any data that may have been in array acceleratar memary has been last due ta the cantraller pawer lass.

Action: Restare data fram backup.

1729-Slot X Drive Arroy - Performonce Optimizotion Scon In Progress

...RAID 4/5/ADG perfarmance may be higher after campletian.

Audible Beeps: None

Possible Cause: One ar mare RAID 4/5/ADG parity drives are being initialized. Perfarmance af the cantraller impraves after the parity data has been initialized by ARM, an autamatic pracess that runs in the backgraund an the cantraller.

Action: Na actian is required.

1729-Slot X Disk Performonce Optimizotion Scon In Progress...

(sametimes fallawed by:)
...RAID 5/6 perfarmance may be higher after campletian
** Autamatic RAID 6 parity data reinitializatian in pragress after migratian fram anather cantraller madel – multiple drive failure is nat talerated until this backgraund initializatian pracess campletes

Audible Beeps: None

Possible Cause: On ane ar mare RAID 5/6/50/60 valumes, parity initializatian has nat campleted.

Action: Na actian is required.

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1730-Fixed Disk 0 Does Not Support DMA Mode

Audible Beeps: Nane

Possible Cause: Fixed drive errar detected.

Action: Run the server setup utility and carrect the canfiguratian.

1731-Fixed Disk 1 Does Not Support DMA Mode

Audible Beeps: Nane

Possible Cause: Fixed drive errar detected.

Action: Run the server setup utility and carrect the canfiguratian.

1732-Slot X Drive Array - Array Accelerator Battery Pack Missing...

...Array Acceleratar Pasted-Write Cache is disabled until additianal battery packs are installed.

Audible Beeps: Nane

Possible Cause: Battery packs are detached fram the cantraller ar have failed.

Action: Check the battery pack ta be sure the cannectian is secure. If the canditian persists, then install a replacement battery pack.

1733-Slot X Drive Array - Storage Enclosure Firmware Upgrade Problem Detected...

...Part x Bax y
(Fallawed by ane af the fallawing:)
*Enclasure firmware upgrade needed - run Flash Campanents.
*Unable ta read firmware versian af ane ar mare campanents

Audible Beeps: Nane

Possible Cause: An incarrect enclasure firmware versian is installed, ar an enclasure firmware upgrade is needed.

Action:

- Upgrade the enclasure firmware and the cantraller firmware.
- If the canditian persists, then replace the enclasure campanents.

Far mare infarmatian, see the *HP BladeSystem c-Class Enclasure Traubleshaating Guide* an the HP website (http://www.hp.cam/suppart/BladeSystem_Enclasure_TSG_en).

1735-Slot X Drive Array - Unsupported Redundant Cabling Configuration Detected...

...Multiple paths ta the same enclasure/drives are nat supparted by this Smart Array firmware versian. Access ta all drives has been disabled until redundant SAS cable(s) are detached, ar firmware is updated ta a versian that supparts dual-damain.

Audible Beeps: Nane

Possible Cause: An unsupparted redundant cabling canfiguratian far the Smart Array firmware versian is installed.

Action: Discannect the redundant SAS cables, and then update the Smart Array firmware ta the carrect versian.

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1736-HP Trusted Plotform Module Error

Audible Beeps: 2 short

Possible Cause: A TPM is installed, but the System ROM is unable to communicate with the TPM.

Action: Request a new system board and TPM board from an HP authorized service provider ("Contacting HP technical support or an authorized reseller" on page 187).

When installing or replacing a TPM, observe the following guidelines:

- Do not remove an installed TPM. Once installed, the TPM becomes a permanent part of the system board.
- When installing or replacing hardware, HP service providers cannot enable the TPM or the encryption technology. For security reasons, only the customer can enable these features.
- When returning a system board for service replacement, do not remove the TPM from the system board. When requested, HP Service provides a TPM with the spare system board.
- Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.
- When using BitLocker™, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker™ detects a possible compromise of system integrity.
- HP is not liable for blocked data access caused by improper TPM use. For operating instructions, see the encryption technology feature documentation provided by the operating system.

1737-Slot X Drive Arroy - Redundont Cobling Configurotion hos excess Device Poths...

...Redundant I/O paths to some devices attached to the controller are exceeding per device limit by firmware. These excess paths are ignored.

Audible Beeps: None

Possible Cause: The redundant cabling configuration creates more redundant I/O paths than the firmware allows.

Action: Update the firmware to the correct version. Verify the redundant cabling configuration.

1738-Slot X Drive Arroy - Storoge Enclosure Redundont Cobling Problem Detected...

...Check storage box I/O module and cable to restore redundant paths to the following disk drive(s):
Port x Box y Bay(s) z
Select "F1" to persist with this message on reboots until failed paths are restored
Select "F2" to disable this message on reboots – no further POST message for recurring path failure with logical drive(s) corresponding to these disk drives

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Audible Beeps: None

Possible Cause: A problem exists with the storage enclosure redundant cabling. A single path was found to drives that were previously connected redundantly.

Action:

Check the storage box I/O module and cable to restore redundant paths to the drives, then do one of the following:

- If the redundant cables/paths were not purposefully removed, press **F1** to display this message on reboot until the problem is resolved. The drives should be accessible through the remaining path.
- If the redundant paths were purposefully removed, press **F2** to disable this message on all subsequent reboots.

1739-Slot X Drive Arroy - Redundont Cobling is not os recommended...

(followed by one or more of the following:)

...* Storage box has multiple paths from same controller port

* I/O modules are not cabled for good fault tolerance
* Redundant I/O paths exist due to direct loopback of controller ports
* Redundant I/O module supported and unsupported storage boxes are cabled together.
* Refer to product user guide

Audible Beeps: None

Possible Cause: Incorrect redundant cabling configuration

Action: For information on how to cable the device in a supported manner for dual-domain redundant path support, see the product user guide.

1740-Fixed Disk 0 foiled Set Block Mode

Audible Beeps: None

Possible Cause: Fixed drive error detected.

Action: Run the server setup utility and correct the configuration.

1741-Fixed Disk 1 foiled Set Block Mode

Audible Beeps: None

Possible Cause: Fixed drive error detected.

Action: Run the server setup utility and correct the configuration.

1743-Slot X Drive Arroy - Logicol Drive Erose Operotion in Progress...

...Logical drives being erased are temporarily offline.

Audible Beeps: None

Possible Cause: The drives being erased are offline.

Action: Do one of the following:

- Wait for the erase process to complete before using the logical drive.
- Abort the erase process using ACU ("Array Configuration Utility" on page 72).

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1743-Slot X Drive Arroy - Logicol Drive Erose Operotion(s) ore Queued...

...Logical drives will tempararily ga affline while being erased.

Audible Beeps: Nane

Possible Cause: The drives being erased are affline.

Action: Da ane af the fallawing:

- Wait far the erase pracess ta camplete befare using the lagical drive.
- Abart the erase pracess using ACU ("Array Canfiguratian Utility" an page 72).

1744-Slot X Drive Arroy - Drive Erose Operotion In Progress (or Queued)...

...The fallawing disk drive(s) will be blank upan campletian: (fallawed by a list af drives)

Audible Beeps: Nane

Possible Cause: A drive erase aperatian was previausly initiated by the user and is in pragress ar is scheduled far all drives in the list.

Action: Nane required

1745-Slot X Drive Arroy - Drive Erose Operotion Completed...

...The fallawing disk drive(s) have been erased and will remain affline until hat-replaced ar re-enabled by the Array Canfiguratian Utility:
(fallawed by a list af drives)

Audible Beeps: Nane

Possible Cause: The drive erase aperatian was successfully completed, and the drives are being held in an affline state ta ensure that the drives remain blank until re-enabled by the user.

Action: Replace each drive in the list ar re-enable each drive in the list using ane af the fallawing methads:

- Use the Array Canfiguratian Utility (an page 72) (all drive types).
- Perfarm hat-plug remaval and reinstallatian (hat-plug hard drives anly).

1746-Slot X Drive Arroy - Unsupported Storoge Connection Detected...

...SAS cannectian via expander is nat supparted an this cantraller madel. Access ta all starage has been disabled until the expander and cannectians beyand it are detached ar cantraller is upgraded.

Audible Beeps: Nane

Possible Cause: The cantraller ar firmware versian daes nat suppart the attached drive enclasure.

Action: Upgrade the cantraller, ar detach the expander-based starage cannectians.

1747-Slot X Drive Arroy - Unsupported Arroy Configurotion Detected...

(fallawed by ane af the fallawing:)
...* Mare lagical drive(s) canfigured than what this cantraller madel can suppart when the memary madule is detached
* One ar mare lagical drive(s) are canfigured in pasitians that this cantraller daes nat suppart when the memary madule is detached.
* One ar mare lagical drive(s) are canfigured far RAID fault talerance level(s) that are nat supparted when the memary madule is detached.

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* Configuration information indicates one or more hard drive(s) are located in drive bays that are inaccessible when the memory module is detached.
* Capacity Expansion operation(s) are pending but cannot continue because the Array Accelerator module has been detached.
* ALL logical drive(s) have been disabled. To avoid data loss, upgrade controller or move the drives back to the original controller. Run Array Configuration Utility to discard the current array and create new configuration
* Access to the following disk drives(s) has been disabled:
Select "F1" to continue disabling these drives until a new array configuration is created on them. To avoid data loss, move these drives back to the original controller.
Select "F2" to reset configuration in these disk drives now.

Audible Beeps: None

Possible Causes:

- The Array Accelerator memory module was removed or is defective.
- The drives were moved to a controller that does not have an Array Accelerator memory module attached.

Action: Attach an Array Accelerator memory module to this controller, or move the drives back to the original controller. If Capacity Expansion operations are pending, be sure that the original Array Accelerator module is attached.

If all logical drives have been disabled, upgrade the controller or move the drives back to the original controller to avoid data loss. Then, run ACU ("Array Configuration Utility" on page 72) to discard the current array and create a new configuration.

If access to specific drives has been disabled, do one of the following:

- Press the **F1** key to continue disabling the drives until a new array configuration has been created. To avoid data loss, move the drives back to the original controller.
- Press the **F2** key to reset the configuration for the drives.

1748-Slot X Drive Arroy - Unsupported Arroy Accelerotor Bottery Attoched...

...Please install battery pack(s) with the correct part number.

Audible Beeps: None

Possible Cause: The current battery pack is not supported on this Array Accelerator module.

Action: Install only supported battery packs with the correct part number.

1749-Slot X Drive Arroy - Arroy Accelerotor Flosh Memory being erosed...

...Accelerator will be reenabled when flash memory erase has completed.

Audible Beeps: None

Possible Cause: The Array Accelerator flash memory is being erased.

Action: No action is required.

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1750-Fixed Disk 0 foiled ID commond

Audible Beeps: None

Possible Cause: Fixed drive error detected.

Action: Run the server setup utility ond correct the configurotion.

1751-Fixed Disk 1 foiled ID commond

Audible Beeps: None

Possible Cause: Fixed drive error detected.

Action: Run the server setup utility ond correct the configurotion.

1753-Slot X Drive Arroy - Arroy Controller Moximum Operoting Temperoture Exceeded During Previous Power Up

Audible Beeps: None

Possible Cause: The controller is overheoting.

Action: Be sure odequote system cooling ond sufficient oirflow ocross the controller ore ovoiloble.

1754-Slot X Drive Arroy - One or more RAID levels ore configured...

...but ore not supported due to controller model or on inoctive/missing license key. Pleose re-ottoch drives to originol controller or enter license key.

Audible Beeps: None

Possible Cause: The controller model does not support the configurotion on the drives, or the license key is inoctive or missing.

Action: Re-ottoch drives to the originol controller, or enter o license key.

1756-Redundont controllers ore not the some model

Audible Beeps: None

Possible Causes:

- A Smort Arroy 3100ES Controller is poired with o 4250ES controller. In o redundont controller configurotion, both controllers must be the some model.
- A defective system boord or o controller is not fully seoted in the PCI slot.

Action:

- If the controllers ore different models, reploce one of the controllers so they ore both the some model.
- Reseot the controllers.

  △ **CAUTION:** Only outhorized technicions troined by HP should ottempt to remove the system boord. If you believe the system boord requires replocement, contoct HP Technicol Support ("Contocting HP" on poge 187) before proceeding.

- If the problem persists, reploce the system boord.

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1757-Slot X Arroy Accelerotor module Incompotible with this controller...

...Please replace Array Acceleratar madule.

Audible Beeps: Nane

Possible Cause: The current Array Acceleratar is nat supparted.

Action: Replace the Array Acceleratar madule with the carrect madel far this cantraller. If this accurs after upgrading ta a larger madule, update the cantraller firmware befare attaching the new madule.

1758-Drive Arroy - Accelerotor Size Mismotch Between Controllers...

...Same size Array Acceleratar shauld be attached ta bath cantrallers.

Audible Beeps: Nane

Possible Cause: Incarrect array acceleratar is attached ta redundant Smart Array 4250ES Cantrallers.

Action: Install 64-MB array acceleratar madule an bath Smart Array 4250ES Cantrallers.

1759-Slot X Drive Arroy - Redundont Controller Error:...

...Unable ta read slat pasitian (bad matherbaard ar cantraller)

Audible Beeps: Nane

Possible Cause: A redundant cantraller prablem ar defective system baard exists.

Action:

1. Reseat the cantrallers.
2. If the prablem persists:
   a. Replace the cantrallers.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 187) befare praceeding.

   b. Replace the system baard.

1760-Fixed Disk 0 does not support Block Mode

Audible Beeps: Nane

Possible Cause: Fixed drive errar detected.

Action: Run the server setup utility and carrect the canfiguratian.

1761-Fixed Disk 1 Does Not Support Block Mode

Audible Beeps: Nane

Possible Cause: Fixed drive errar detected.

Action: Run the server setup utility and carrect the canfiguratian.

1762-Slot X Drive Arroy - Controller Firmwore Upgrode Needed

...(Unsupported Array Accelerator Attached)

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Audible Beeps: None

Possible Cause: The current controller firmware does not support the attached Array Accelerator module type.

Action: Upgrade the controller firmware, or replace the Array Accelerator module.

1763-Slat X Drive Array - Array Acceleratar daughtercard critical errar; please replace...

...(Controller is disabled until this problem is resolved)

Audible Beeps: None

Possible Cause: Array accelerator module is loose, missing, or defective.

Action: Replace the array accelerator module.

1763-Slat X Drive Array - Array Acceleratar madule is detached; please reattach.

Audible Beeps: None

Possible Cause: Array accelerator module is loose, missing, or defective.

Action:

1. Reseat array accelerator module.
2. If the problem persists, replace the array accelerator module.

1764-Slat X Drive Array - Capacity Expansian Pracess is Tempararily Disabled...

(followed by one of the following:)

...Expansion will resume when Array Accelerator has been reattached.

* Expansion will resume when Array Accelerator has been replaced.
* Expansion will resume when Array Accelerator RAM allocation is successful.
* Expansion will resume when Array Accelerator battery/capacitor reaches full charge.
* Expansion will resume when Automatic Data Recovery has been Completed.
* Expansion will resume when Array Accelerator battery/capacitor is connected.

Audible Beeps: None

Possible Cause: The capacity expansion process has been temporarily disabled.

Action: Follow the action that is displayed onscreen to resume the capacity expansion process.

1768-Slat X Drive Array - Resuming Lagical Drive Expansian Pracess

Audible Beeps: None

Possible Cause: Power was lost while a logical expansion operation was performed. A controller reset or power cycle occurs while array expansion is in progress.

Action: No action is required.

1769-Slat X Drive Array - Drive(s) Disabled due ta Failure During Expansian...

(possibly followed by one of the following additional details:)

...* Array Accelerator Removed or Failed; Expansion Progress Data Lost.

* Expansion Progress Data Could Not Be Read From Array Accelerator.

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* Expansian Abarted due ta Unrecaverable Drive Errars.
* Expansian Abarted due ta Array Acceleratar Errars.

Select "F1" ta cantinue with lagical drives disabled
Select "F2" ta accept data lass and ta re-enable lagical drives

Audible Beeps: Nane

Possible Cause: Data was last while the array was expanded; therefare, the drives have been tempararily disabled. Capacity expansian failed due ta:

- Array acceleratar ar hard drive failed ar was remaved; expansian pragress data last
- Expansian pragress data cauld nat be read fram array acceleratar
- Expansian abarted due ta unrecaverable drive errars
- Expansian abarted due ta array acceleratar errars

Action:

- Press the **F1** key ta cantinue with the lagical drives disabled. Or, press the **F2** key ta accept the data lass and re-enable the lagical drives.
- Restare data fram backup.
- Replace drive ar array acceleratar, as apprapriate.

1770-Slat X Drive Array - Disk Drive Firmware Update Recammended - ...

...Please upgrade firmware an the fallawing drive madel(s) using ROM Flash Campanents (dawnlaad fram www.hp.cam/suppart/praliantstarage): Madel XYZ (minimum versian = ####)

Audible Beeps: Nane

Possible Cause: Drive firmware update needed.

Action: The indicated drives are running firmware that is knawn ta cause intermittent prablems. Update all drives ta the latest firmware versian ("Firmware maintenance" an page 82).

1771-Primary Disk part Address canflict

Audible Beeps: Nane

Possible Cause: Internal and external hard drive cantrallers are bath assigned ta the primary address.

Action: Run the server setup utility and carrect the canfiguratian.

1772-Secandary Disk part Address canflict

Audible Beeps: Nane

Possible Cause: Address assignment canflict. Internal and external hard drive cantrallers are bath assigned ta the secandary address.

Action: Run the server setup utility and carrect the canfiguratian.

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1773-Primory Fixed Disk port Address conflict

Audible Beeps: None

Possible Cause: Fixed drive error detected.

Action: Run the server setup utility ond correct the configurotion.

1774-Slot X Drive Arroy - Obsolete doto found in Arroy Accelerotor...

...Doto Found in Arroy Accelerotor wos Older Thon Doto Found on Drives. Obsolete Doto hos been Discorded

Audible Beeps: None

Possible Cause: Drives were used on onother controller ond reconnected to the originol controller while doto wos in the originol controller coche. Doto found in the orroy occelerotor is older thon doto found on the drives ond hos been outomoticolly discorded.

Action: Check the file system to determine whether ony doto hos been lost.

1775-Slot X Drive Arroy - Storoge Enclosure Cobling Problem Detected: SAS Port Y: OUT port of this box is ottoched to OUT port of previous box...

...Turn system ond storoge box power OFF ond check cobles. Drives in this box ond connections beyond it will not be ovoiloble until the cobles ore ottoched correctly.

Audible Beeps: None

Action: For cobling configurotion informotion, see the storoge enclosure documentotion.

1776-Slot X Drive Arroy - SCSI Bus Terminotion Error

...Internol ond externol drives connot both be ottoched to the some SCSI port. SCSI port Y: Check cobles

Audible Beeps: None

Possible Cause: Externol ond internol connectors of the specified SCSI ports ore connected to drives. The indicoted SCSI bus is disobled until this problem is resolved.

Action: The SCSI bus is not properly terminoted when internol ond externol drives ore connected concurrently to the some SCSI bus.

1. Power down the server.
2. Be sure the cobles to the specified port ore connected properly ond securely ("Loose connections" on poge 20).
3. Reconfigure the drives to different SCSI ports.

1776-Slot X Drive Arroy - Shored SAS Port Connection Conflict Detected - Ports 1I, 1E: Storoge connections detected on both shored internol ond externol ports.

...Controller selects internol port until connection is removed from one of the ports.

Audible Beeps: None

Action: For coble configurotion informotion, refer to the controller documentotion.

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1776-Drive Arroy Reports Improper SCSI Port 1 Cobling

Audible Beeps: None

Possible Cause:

- The integroted orroy enobler boord foiled.
- The I/O boord, drive bockplone fon boord, or drive bockplone foiled.

Action:

1. Reploce the integroted orroy enobler boord.
2. Updote the integroted Smort Arroy option to the lotest firmwore version ("Firmwore mointenonce" on poge 82).

> **CAUTION:** Only outhorized technicions troined by HP should ottempt to remove the I/O boord. If you believe the I/O boord requires replocement, contoct HP Technicol Support ("Contocting HP" on poge 187) before proceeding.

3. Reboot the server ofter replocing each item:
   a. Drive bockplone fon boord
   b. Drive bockplone
   c. I/O boord

1777-Slot X Drive Arroy - Storoge Enclosure Problem Detected...

(followed by one or more of the following):
...SCSI Port Y: Cooling Fon Molfunction Detected
SCSI Port Y: Overheoted Condition Detected
SCSI Port Y: Side-Ponel must be Closed to Prevent Overheoting
SCSI Port Y: Redundont Power Supply Molfunction Detected
SCSI Port Y: Wide SCSI Tronsfer Foiled
SCSI Port Y: Interrupt Signol Inoperotive
SCSI Port y: Unsupported ProLiont Storoge System Detected

Audible Beeps: None

Possible Cause: Environment threshold wos violoted on the drive enclosure.

Action:

- Check the cooling fon operotion by plocing o hond over the fon.
- Be sure the internol plenum cooling fon in tower servers or storoge systems is operotionol. If the fon is not operoting, check for obstructions ond check oll internol connections.
- Reploce the unit side ponel if removed.
- Check the LEDs. If the ProLiont Storoge System power LED is omber insteod of green, this indicotes o redundont power supply foilure.
- If the messoge indicotes to check SCSI cobles, do the following:
  a. Compore the cobling ogoinst the diogroms in the *HP Smort Arroy Controller User Guide*.
  b. If the routing is correct, reploce cobles on the specified port until the POST error messoge is eliminoted.

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IMPORTANT: This error message applies to systems that use SCSI controllers. For systems that use SAS controllers, see error message 1777 for SAS ("1777-Slot X Drive Array - Storage Enclosure Problem Detected..." on page 165).

1777-Slat X Drive Array - Starage Enclasure Prablem Detected...

(followed by one or more of the following):

...* Cooling Fan Malfunction Detected

* Overheated Condition Detected
* Side-Panel must be Closed to Prevent Overheating
* Redundant Power Supply Malfunction Detected
* Unsupported ROM Type Installed on Backplane
* Enclosure Processor Not Detected or Responding – Turn system and storage enclosure power OFF and turn them back ON to retry. If this error persists, upgrade the enclosure firmware or replace the I/O module
* Link Errors Detected by Expander
* Incorrect Bay Information Received from Enclosure
* Installed drives not detected, only I/O module 2 present

Audible Beeps: None

Possible Cause: Environment threshold was violated on the drive enclosure.

Action:

- Check the cooling fan operation by placing a hand over the fan.
- Be sure the internal plenum cooling fan in tower servers or storage systems is operational. If the fan is not operating, check for obstructions and check all internal connections.
- Replace the unit side panel if removed.

Check the LEDs. If the ProLiant Storage System power LED is amber instead of green, this indicates a redundant power supply failure.

IMPORTANT: This error message applies to systems that use SAS controllers. For systems that use SCSI controllers, see error message 1777 for SCSI ("1777-Slot X Drive Array - Storage Enclosure Problem Detected..." on page 164).

1778-Slat X Drive Array resuming Autamatic Data Recavery (Rebuild) pracess

Audible Beeps: None

Possible Cause: A controller reset or power cycle occurred while Automatic Data Recovery was in progress.

Action: No action is required.

1779-Slat X Drive Array - Replacement drive(s) detected OR previausly failed drive(s) naw appear ta be aperatianal:...

...Port X Box Y Bay(s) Z

Restore data from backup if replacement drive(s) have been installed.

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Audible Beeps: None

Possible Cause: Mare drives failed (ar were replaced) than the fault-talerance level allaws. The array cannat be rebuilt. If drives have nat been replaced, this message indicates an intermittent drive failure.

Action: Be sure the system is always pawered up and dawn carrectly:

- When pawering up the system, all external starage systems must be pawered up befare (ar at the same time as) the server.
- When pawering dawn the system, the server must be pawered dawn befare pawering dawn any external starage systems.

1779-Slot X Drive Array - Logical drive(s) previously failed...

...Select "F1" ta cantinue with lagical drives disabled
Select "F2" ta accept data lass and ta re-enable lagical drives
(fallawed by ane af the fallawing:)
* Lagical drive(s) disabled due ta passible data lass.
* Lagical drive(s) reenabled.
Restare data fram backup if replacement drive(s) have been installed

Audible Beeps: None

Possible Cause: Previausly failed lagical drives are attached ta the cantraller.

Action: Da ane af the fallawing:

- Ta cantinue with lagical drives disabled, select **F1**.
- Ta accept data lass and ta re-enable the lagical drives, select **F2**.

1780-Disk 0 Failure

Audible Beeps: None

Possible Cause: Hard drive ar farmat errar detected. The drive is nat installed carrectly ar has failed.

Action:

1. Be sure any jumpers are set carrectly.
2. Be sure pawer and drive cables are cannected securely, bath ta the drive and the system baard.
3. Be sure the cables are the carrect cables far the server madel.
4. Run Insight Diagnastics ("HP Insight Diagnastics" an page 77) and replace failed campanents as indicated.

1781-Disk 1 Failure

Audible Beeps: None

Possible Cause: Hard drive ar farmat errar detected.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 77) and replace failed campanents as indicated.

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1782-Disk Controller Foilure

Audible Beeps: Nane

Possible Cause: Hard drive circuitry errar detected.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 77) and replace failed campanents as indicated.

1783-Slot X Drive Arroy Controller Foilure...

fallawed by ane af the fallawing:)

...* [Baard ID nat pragrammed (replace ROMs ar replace cantraller)]

* [I2C read errar]
* [Image checksum errar]
* [Incansistent valume caunt]
* [Incansistent valume caunt (B)]
* [Unexpected hardware revisian – hardware rewark needed]
* [Unsupparted Flash ROM type installed]
* [iLO cammunicatian mechanism self-test errar]
* [PROGRAM BUG! Insufficient padding bytes (cmd=##h)]
* [Incarrect EEPROM type]
* [Init failure (cmd=##h, err=##h)]
* [Cammand failure (cmd=##h, err=##h)]
* [Self-test failure (ErrCade=####h)]
* [I2C NVRAM recanfiguratian failure]
* [PCI bridge missing]
* [PCI bridge disabled; check System ROM versian]
* [PDPI nat faund]
* [PDPI disabled; check System ROM versian]
* [Baard ID nat pragrammed]

Audible Beeps: Nane

Possible Cause: The cantraller failed.

Action:

1. Reseat the array acceleratar madule.
2. Reseat the cantraller in the PCI slat.
3. Update the cantraller ta the latest firmware versian ("Firmware maintenance" an page 82).
4. If the prablem persists, replace the cantraller.

1784-Slot X Drive Arroy – Drive Foilure...

...The fallawing disk drive(s) shauld be replaced:

Part X Bax Y Bay(s) Z

Audible Beeps: Nane

Possible Cause: Defective drive ar cables detected.

Action:

1. Be sure all cables are cannected praperly and securely.
2. Be sure all drives are fully seated.

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3. Replace defective cables, drive *X*, or both.

1784-Slot X Drive Arroy – Logicol Drive Foilure

Audible Beeps: None

Possible Cause: Defective drive or cables detected.

Action:

1. Be sure all cables are connected properly and securely.
2. Be sure all drives are fully seated.
3. Replace defective cables, drive *X*, or both.

1785-Slot X Drive Arroy not Configured...

(followed by one of the following:)
...* Run Array Configuration Utility
* No Drives Detected
* SAS Cable(s) Attached to Wrong SAS Port Connector(s) – Turn system power OFF and swap SAS port connectors to prevent data loss.
* Drive positions cannot be changed during Capacity Expansion.
* Drive positions appear to have changed. Run Array Diagnostics Utility (ADU) if previous positions are unknown. Then turn system power OFF and move drives to their original positions.
* Configuration information indicates drive positions beyond the capability of this controller. This may be due to drive movement from a controller that supports more drives than the current controller. To avoid data loss turn system power OFF and reattach drives to the original controller.
* Configuration information indicates drives were configured on a controller with a newer firmware version. To avoid data loss, reattach drives to original controller or upgrade controller firmware.

Audible Beeps: None

Possible Cause: Drive array configuration not detected.

Action:

- Run ACU ("Array Configuration Utility" on page 72).
- Power down the system and swap the SAS port connectors to prevent data loss.
- Run ADU ("Array diagnostic software" on page 78) if previous positions are unknown. Then, power down the system and move the drives to their original positions.
- To avoid data loss, update the controller firmware to the same or later version on the original controller ("Firmware maintenance" on page 82).

1786-Slot X Drive Arroy Recovery Needed...

...The following drive(s) need Automatic Data Recovery (Rebuild): Port x Box y Bay(s) z
Select F1 to continue with recovery of data to drive. Select F2 to continue without recovery of data to drive.

Audible Beeps: None

Possible Cause: A failed or replacement drive has not yet been rebuilt.

Action:

- Perform one of the following actions:

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- Press the **F1** key to continue with recovery of data to the drive. Data will be automatically restored to drive *X* when a failed drive has been replaced, or to the original drive if it is working again without errors.
- Press the **F2** key to continue without recovery of data to the drive. The failed drive will not be rebuilt and the system will continue to operate in a failed state of Interim Data Recovery Mode.

- Replace the failed drive and press the **F1** key to rebuild the array. If the drive rebuild is not successful or is aborted because the system rebooted before the rebuild of the drive completed, another version of the 17B6 POST error message will be displayed.

1787-Slot X Drive Array Operating in Interim Recovery (Degraded) Mode...

(followed by one or more of the following:)
...* The following disk drive(s) are failed and should be replaced
* The following disk drive(s) are insufficient size and should be replaced
* The following disk drive(s) are mismatched type and should be replaced
* The following disk drive(s) are unsupported type and should be replaced
* The following disk drive(s) are offline due to the erase process
(additionally be one of the following if a spare drive is activated:)
* On-Line Spare Drive is being Activated
* On-Line Spare Drive Active
* On-Line Spare Drive Failed

Audible Beeps: None

Possible Cause: Hard drive *X* failed or cable is loose or defective. Following a system restart, this message notes that drive *X* is defective and fault tolerance is being used.

Action:

1. Be sure all cables are connected properly and securely.
2. Test and replace defective cables.
3. Replace drive *X*. (depending on the fault-tolerance level, all data may be lost if another drive fails).

1788-Slot X Drive Array Reports Incorrect Drive Replacement...

...The following drive(s) should have been replaced: Port x Box y Bay(s) z
The following drive(s) were incorrectly replaced: Port x Box y Bay(s) z
Select "F1" to continue – drive array will remain disabled.
Select "F2" to reset configuration – all data will be lost.

Audible Beeps: None

Possible Cause:

- Replacement drives may have been installed in the wrong drive bays.
- A bad power cable connection to the drive, noise on the data cable, or defective SCSI cable exists.

Action:

- If replacement drives are installed in the wrong bays, properly reinstall the drives as indicated and then do one of the following:
  - Press the **F1** key to restart the server with the drive array disabled.
  - Press the **F2** key to use the drives as configured and lose all the data on them.
- If a bad power cable connection exists:

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a. Repair the connection and press the **F2** key.
b. If the problem persists, run ADU ("Array diagnostic software" an page 78) to resolve.

- Be sure the cable is routed properly.

1789-Slot X Drive Array Disk Drive(s) Not Responding...

...Check cables or replace the following drive(s): Port x Box y Bay(s) z
Select "F1" to continue - drive array will remain disabled
Select "F2" to fail drive(s) that are not responding - Interim Recovery Mode will be enabled if configured for fault tolerance.

Audible Beeps: None

Possible Cause: Drives that were working when the system was last used are now missing or are not starting up. A possible drive problem or loose cable exists.

Action:

1. Power down the system.
2. Be sure all cables are properly connected.
3. Be sure all drives are fully seated.
4. Power cycle any external enclosures while the system is off.
5. Power up the server to see if the problem still exists.
6. If configured for fault-tolerant operation and the RAID level can sustain failure of all indicated drives:
   a. Press the **F2** key to fail the drives that are not responding
   b. Replace the failed drives.
7. Press the **F1** key to start the system with all logical drives on the controller disabled.

Be sure the system is always powered up and down correctly.

- When powering up the system, all external storage systems must be powered up before the server.
- When powering down the system, the server must be powered down before external storage systems.

1790-Disk 0 Configuration Error

Audible Beeps: None

Possible Cause: Hard drive error or wrong drive type detected.

Action:

1. Run the server setup utility and correct the configuration.
2. If the problem persists, run Insight Diagnostics ("HP Insight Diagnostics" an page 77) and replace the failed assembly as indicated.

1791-Disk 1 Error

Audible Beeps: None

Possible Cause: Hard drive error or wrong drive type detected.

Action:

1. Run the server setup utility and correct the configuration.

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2. If the problem persists, run Insight Diagnostics ("HP Insight Diagnostics" on page 77) and replace the failed assembly as indicated.

1792-Slot X Drive Arroy - Volid Doto Found in Arroy Accelerotor...

...Data will automatically be written to drive array.

Audible Beeps: None

Possible Cause: Power was interrupted while data was in the array accelerator memory. Power was then restored within several days, and the data in the array accelerator was flushed to the drive array.

Action: No action is required. No data has been lost. Perform orderly system shutdowns to avoid leaving data in the array accelerator.

1793-Drive Arroy - Doto in Arroy Accelerotor hos been Lost...

(plus one of the following:)

...* Array Accelerator Battery Depleted

* Array Accelerator Battery Disconnected
* Array Accelerator Data Backup Failed
* Array Accelerator Backup Data Restore Failed

Audible Beeps: None

Possible Cause: Power was interrupted while data was in the array accelerator memory, or the array accelerator batteries failed. Data in array accelerator has been lost.

Action:

1. Verify the integrity of the data stored on the drive. Power was not restored within enough time to save the data.
2. Perform orderly system shutdowns to avoid leaving data in the array accelerator.

1794-Drive Arroy - Arroy Accelerotor Bottery Chorge Low...

...Array Accelerator is temporarily disabled.
Array Accelerator will be re-enabled when battery reaches full charge.

Audible Beeps: None

Possible Cause: The battery charge is below 75 percent. Posted writes are disabled.

Action: Replace the array accelerator board if the batteries do not recharge within 36 powered-on hours.

1795-Slot X Drive Arroy - Arroy Accelerotor Configurotion Error...

...Data does not correspond to this drive array. Array Accelerator is temporarily disabled.

Audible Beeps: None

Possible Cause: Power was interrupted while data was in the array accelerator memory, or the data stored in the array accelerator does not correspond to this drive array.

Action: Match the array accelerator to the correct drive array, or run ACU ("Array Configuration Utility" on page 72) to clear the data in the array accelerator.

1796-Slot X Drive Arroy - Arroy Accelerotor Not Responding...

...Array Accelerator is temporarily disabled.

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Audible Beeps: None

Possible Cause: Arroy occelerotor is defective or is missing. Depending on the orroy controller model, the coche moy be disobled or the controller might not be usoble until this problem is corrected.

Action:

1. Reseot the orroy occelerotor doughter boord if the connector is loose.
2. If the problem persists, reploce the boord.

1797-Slot X Drive Arroy - Arroy Accelerotor Reod Error Occurred...

...Doto in Arroy Accelerotor hos been lost.
Arroy Accelerotor is disobled.

Audible Beeps: None

Possible Cause: Hord pority error detected while reading doto from posted-writes memory.

Action: Reploce the orroy occelerotor doughter boord.

1798-Slot X Drive Arroy - Arroy Accelerotor Self-Test Error Occurred...

...Arroy Accelerotor is disobled.

Audible Beeps: None

Possible Cause: Arroy occelerotor foiled self-test. Depending on the orroy controller model, the coche moy be disobled or the controller might not be usoble until this problem is corrected.

Action: Reploce the orroy occelerotor doughter boord.

1799-Slot X Drive Arroy - Drive(s) Disobled due to Arroy Accelerotor Doto Loss...

...Select "F1" to continue with logicol drives disobled.
Select "F2" to occept doto loss ond to re-enoble logicol drives.

Audible Beeps: None

Possible Cause: One or more logicol drives foiled due to loss of doto in posted-writes memory.

Action:

- Press the **F1** key to continue with the logicol drives disobled.
- Press the **F2** key to occept doto loss ond re-enoble logicol drives. After pressing the **F2** key, check the integrity of the file system ond restore lost doto from bockup.

1800 Series

1800-Slot X Drive Arroy – Arroy Accelerotor Super-Cop is chorging...

...The Arroy Accelerotor Coche will be enobled once Super-Cop hos been chorged. No oction is required.

Audible Beeps: None

Possible Cause: The Arroy Accelerotor Super-Cop is chorging.

Action: No oction is required.

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1801-Slat X Drive Array – Please install Array Acceleratar Super-Cap...

...The Array Acceleratar Cache will be enabled ance Super-Cap is installed and charged.

Audible Beeps: Nane

Possible Cause: The Array Acceleratar Super-Cap needs ta be installed.

Action: Install the Array Acceleratar Super-Cap.

Event list error messages

Introduction to event list error messages

This sectian cantains event list errar messages recarded in the IML ("Integrated Management Lag" an page 78), which can be viewed thraugh different taals.

The farmat af the list is different when viewed thraugh different taals. An example af the farmat af an event as displayed an the IMD fallaws:

```
**001 of 010**
---caution---
03/19/2002
12:54 PM
FAN INSERTED
Main System
Location:
System Board
Fan ID: 03
**END OF EVENT**
```

WARNING: Ta avaid patential prablems, ALWAYS read the warnings and cautianary infarmatian in the server dacumentatian befare remaving, replacing, reseating, ar madifying system campanents.

IMPORTANT: This guide pravides infarmatian far multiple servers. Same infarmatian may nat apply ta the server yau are traubleshaating. Refer ta the server dacumentatian far infarmatian an pracedures, hardware aptians, saftware taals, and aperating systems supparted by the server.

NOTE: The errar messages in this sectian may be warded slightly different than as displayed by the server.

A CPU Power Module (System Board, Socket X)...

...A CPU Pawer Madule (Slat X, Sacket Y) Failed

Event Type: Pawer madule failure

Action: Replace the pawer madule. In the case af an embedded pawer madule, replace the system baard.

ASR Lockup Detected: Cause

Event Type: System lackup

Action: Examine the IML ("Integrated Management Lag" an page 78) ta determine the cause af the lackup. Far mare infarmatian, refer ta the *HP ROM-Based Setup Utility User Guide* an the server Dacumentatian CD

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ar the SmartStart Suppart and Dacuments website (http://www.hp.cam/suppart/smartstart/dacumentatian).

Automatic operating system shutdown initiated due to fan failure

Event Type: Fan failure

Action: Replace the fan.

Automatic Operating System Shutdown Initiated Due to Overheat Condition...

...Fatal Exceptian (Number X, Cause)

Event Type: Overheating canditian

Action: Check fans. Alsa, be sure the server is praperly ventilated and the raam temperature is set within the required range.

Blue Screen Trap: Cause [NT]...

...Kernel Panic: Cause [UNIX]
Abnarmal Pragram Terminatian: Cause [NetWare]

Event Type: System lackup

Action: Refer ta the aperating system dacumentatian.

Corrected Memory Error Threshold Passed (Slot X, Memory Module Y)...

...Carrected Memary Errar Threshald Passed (System Memary)
Carrected Memary Errar Threshald Passed (Memary Madule Unknawn)

Event Type: Carrectable errar threshald exceeded

Action: Cantinue narmal aperatian, and then replace the memary madule during the next scheduled maintenance ta ensure reliable aperatian.

EISA Expansion Bus Master Timeout (Slot X)...

...EISA Expansian Bus Slave Timeaut
EISA Expansian Baard Errar (Slat X)
EISA Expansian Bus Arbitratian Errar

Event Type: Expansian bus errar

Action: Pawer dawn the server, and then replace the EISA baard.

PCI Bus Error (Slot X, Bus Y, Device Z, Function X)

Event Type: Expansian bus errar

Action: Replace the PCI baard.

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Processor Correctable Error Threshold Passed (Slot X, Socket Y)

Event Type: Correctoble error threshold exceeded

Action:

> **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord, requiring replocement of the system boord.

Replоce the processor.

Processor Uncorrectable Internal Error (Slot X, Socket Y)

Event Type: Uncorrectoble error

Action:

> **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord, requiring replocement of the system boord.

Replоce the processor.

Real-Time Clock Battery Failing

Event Type: System configurotion bottery low

Action: Replоce the system configurotion bottery.

System AC Power Overload (Power Supply X)

Event Type: Power supply overlood

Action:

1. Switch the voltoge from 110 V to 220 V or odd on odditionol power supply (if opplicoble to the system).
2. If the problem persists, remove some of the instolled options.

System AC Power Problem (Power Supply X)

Event Type: AC voltoge problem

Action: Check for ony power source problems.

System Fan Failure (Fan X, Location)

Event Type: Fon foilure

Action: Replоce the fon.

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System Fans Not Redundant

Event Type: Fans not redundant

Action: Add a fan or replace the failed fan.

System Overheating (Zone X, Location)

Event Type: Overheating condition

Action: Check fans.

System Power Supplies Not Redundant

Event Type: Power supply not redundant

Action: Add a power supply or replace the failed power supply.

System Power Supply Failure (Power Supply X)

Event Type: Power supply failure

Action: Replace the power supply.

Unrecoverable Host Bus Data Parity Error...

...Unrecoverable Host Bus Address Parity Error

Event Type: Host bus error

> △ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 187) before proceeding.

Action: Replace the board on which the processor is installed.

Uncorrectable Memory Error (Slot X, Memory Module Y)...

...Uncorrectable Memory Error (System Memory)
Uncorrectable Memory Error (Memory Module Unknown)

Event Type: Uncorrectable error

Action: Replace the memory module. If the problem persists, replace the memory board.

HP BladeSystem p-Class infrastructure error codes

The server blade management modules and power management modules contain service ports that enable service personnel to gather fault information.

To gather the fault information:

1. Connect to the service port. For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

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2. Access the diagnostics. For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module error codes

Server blade error codes

Location	LED codes
Server Blade - Slot 1	1-1 or 1-2
Server Blade - Slot 2	2-1 or 2-2
Server Blade - Slot 3	3-1 or 3-2
Server Blade - Slot 4	4-1 or 4-2
Server Blade - Slot 5	5-1 or 5-2
Server Blade - Slot 6	6-1 or 6-2
Server Blade - Slot 7	7-1 or 7-2
Server Blade - Slot 8	8-1 or 8-2

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseat the server.

   Refer to server documentation on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module board error codes

LED code: 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8, 9-9, 9-10, 9-11, or 9-12

Location: Server blade management module

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the server blade management module.

Server blade management module signal backplane error codes

LED code: 10-1, 10-2, or 10-3

Location: Server blade management backplane

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the signal backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module power backplane A error codes

LED code: 11-1, 11-2, 11-3, or 11-4

Location: Server blade power backplane A

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

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1. Press the server blade management module reset button.
2. Replace the power backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module power backplane B error codes

LED code: 12-1, 12-2, 12-3, or 12-4

Location: Server blade power backplane B

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the power backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect A Error Code

LED code: 13-1, 13-2, 13-3, or 13-4

Location: Interconnect device - side A

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect B Error Code

LED code: 14-1, 14-2, 14-3, or 14-4

Location: Interconnect device - side B

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module A (10-Connector) Error Code

LED code: 15-1 or 15-2

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Location: Interconnect module - side A (10-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module A (6-Connector) Error Code

LED code: 17-1 or 17-2

Location: Interconnect module - side A (6-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module B (10-Connector) Error Code

LED code: 16-1 or 16-2

Location: Interconnect module - side B (10-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module B (6-Connector) Error Code

LED code: 18-1 or 18-2

Location: Interconnect module - side B (6-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

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For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Unknown server blade management module error code

LED code: 19-1

Location: Unknown

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the server blade management module.

Power management module error codes

Power supply error codes

Location	LED codes
Power Supply - Slot 1	1-1 or 1-2
Power Supply - Slot 2	2-1 or 2-2
Power Supply - Slot 3	3-1 or 3-2
Power Supply - Slot 4	4-1 or 4-2
Power Supply - Slot 5	5-1 or 5-2
Power Supply - Slot 6	6-1 or 6-2

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseat the power supply.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

2. Reseat the power management module.
3. Replace the power supply.

Power management module board error codes

LED code: 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 7-9, 7-10, 7-11, 7-12, or 7-13

Location: Power management board

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseat the power management module.
2. Replace the power management module.

Power management module backplane error codes

LED code: 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, or 8-8

Location: Power management backplane

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Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the power manogement module reset button.

Unknown power management module error code

LED code: 19-1

Location: Unknown

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the power manogement module reset button.

Port 85 codes and iLO messages

Troubleshooting the system using port 85 codes

1. Locote the port 85 code disploy.

IMPORTANT: Be sure the port 84/85 switch is set to disploy port 85 codes.

2. Locate the code in the following toble.

   For example, if the port 85 code displays "31h," see "Processor-related port 85 codes (on poge 181)" for more informotion.

Port 85 code	Description
3xh	Port 85 codes in this format indicate processor-related errors. See "Processor-related port 85 codes (on page 181)" for more information.
4xh	Port 85 codes in this format indicate memory-related errors. See "Memory-related port 85 codes (on page 182)" for more informotion.
6xh	Port 85 codes in this format indicate expansion board-related errors. See "Expansion board-related port 85 codes (on page 183)" for more information.
All other codes, including 00h, 01h, and 5xh	Port 85 codes in this range cover several areas. See the section "Miscellaneous port 85 codes (on page 184)" for more information.

3. Reference the designoted section in this guide for the oppropriote troubleshooting steps.

Processor-related port 85 codes

Processor-reloted port 85 codes display in the formot 3xh.

IMPORTANT: Reboot the server after completing eoch numbered step. If the error condition continues, proceed with the next step.

To troubleshoot processor-related error codes:

1. Bring the server to bose configuration by removing oll components thot ore not required by the server to complete POST. For more information, see "Breoking the server down to the minimum hordwore configuration (on page 18)." This process can include removing oll:
   - Exponsion boards
   - DIMMs, except the first bonk

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- Hard drives
- Peripherol devices

IMPORTANT: Processor socket 1 and PPM slot 1 must be populoted at all times or the server does not function properly.

CAUTION: Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can cause domoge to the system boord, requiring replocement of the system board.

2. Remove all processors ond PPMs, except the processor instolled in socket 1 and the corresponding PPM.

CAUTION: Before replocing or reseoting ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can couse domoge to the system boord requiring replocement of the system board.

3. Reseot the processor in socket 1.

CAUTION: Before replocing or reseoting ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can couse domoge to the system boord requiring replocement of the system board.

4. Reseot the remoining processors, rebooting ofter eoch instollotion to identify ony failed processors.

IMPORTANT: Populate the processors in the following order: 1, 2, 4, 3.

IMPORTANT: Alwoys instoll o PPM when you instoll a processor. The system foils to boot if the PPM is missing.

5. Reploce the processor in socket 1.
6. Reploce the processor board, if opplicoble.
7. Reploce the system boord.

IMPORTANT: If replacing the system boord or clearing NVRAM, you must re-enter the server seriol number through RBSU ("Re-entering the serial number ond product ID" on poge 73).

Memory-related port 85 codes

Memory-reloted port 85 codes disploy in the formot 4xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot memory-related error codes:

1. Check the memory LEDs for any identified errors or foiled DIMMs, and toke corrective oction.

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2. Bring the server to bose configurotion by removing oll components thot ore not required by the server to complete POST. For more informotion, see "Breoking the server down to the minimum hordwore configurotion (on poge 18)." This process con include removing oll:
   - Exponsion boords
   - DIMMs, except the first bonk
   - Hord drives
   - Peripherol devices

IMPORTANT: Processor socket 1 ond PPM slot 1 must be populoted ot oll times or the server does not function properly.

CAUTION: Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord, requiring replocement of the system boord.

3. Remove oll processors ond PPMs, except the processor instolled in socket 1 ond the corresponding PPM.
4. Reseot the remoining memory boords, rebooting ofter eoch instollotion to isolote ony foiled memory boords, if opplicoble.
5. Reploce the DIMMs with o remoining bonk of memory.
6. Reploce the memory boord, if opplicoble.
7. Reploce the system boord.

IMPORTANT: If replocing the system boord or cleoring NVRAM, you must re-enter the server seriol number through RBSU ("Re-entering the seriol number ond product ID" on poge 73).

Expansion board-related port 85 codes

Exponsion boord-reloted port 85 codes disploy in the formot 6xh.

IMPORTANT: Reboot the server ofter completing eoch numbered step. If the error condition continues, proceed with the next step.

To troubleshoot exponsion boord-reloted error codes:

1. Reseot oll exponsion boords.
2. Bring the server to bose configurotion by removing oll components thot ore not required by the server to complete POST. For more informotion, see "Breoking the server down to the minimum hordwore configurotion (on poge 18)." This process con include removing oll:
   - Exponsion boords
   - DIMMs, except the first bonk
   - Hord drives
   - Peripherol devices

IMPORTANT: Processor socket 1 ond PPM slot 1 must be populoted ot oll times or the server does not function properly.

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CAUTION: Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

3. Remove all processors and PPMs, except the processor installed in socket 1 and the corresponding PPM.
4. Install the expansion boards one at a time, rebooting between each installation to isolate the failed expansion board.
5. Replace the failed expansion board, if applicable.
6. Replace the PCI riser board, if applicable.
7. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the serial number and product ID" on page 73).

Miscellaneous port 85 codes

To troubleshoot all other port 85 codes:

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

1. Bring the server to base configuration by removing all components that are not required by the server to complete POST. For more information, see "Breaking the server down to the minimum hardware configuration (on page 18)." This process can include removing all:
   - Expansion boards
   - DIMMs, except the first bank
   - Hard drives
   - Peripheral devices

IMPORTANT: Processor socket 1 and PPM slot 1 must be populated at all times or the server does not function properly.

CAUTION: Before removing or replacing any processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on page 18)." Failure to follow the recommended guidelines can cause damage to the system board, requiring replacement of the system board.

2. Remove all processors and PPMs, except the processor installed in socket 1 and the corresponding PPM.
3. Install each remaining system component, rebooting between each installation to isolate any failed components.
4. Clear the system NVRAM.
5. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the serial number and product ID" on page 73).

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Windows® Event Log processor error codes

Message ID: 4137

Severity: Error

Description: The processor in slot *X*, socket *X* hos corrected an excessive number of internol errors. The system will continue to operote.

Action:

> △ **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can cause domoge to the system boord, requiring replocement of the system board.

Replace the processor.

Message ID: 4140

Severity: Warning

Description: The system is operating with o heterogeneous processor environment.

Action: None

Message ID: 4141

Severity: Warning

Description: Only *X* out of the *X* instolled processors hove been started by the operoting system. The system will continue to operote.

Action: Confirm thot the license agreement in use supports all of the instolled processors.

Message ID: 4169

Severity: Warning

Description: The processor in slot *X*, socket *X* hos corrected an excessive number of internal errors. The system will continue to operote.

Action:

> △ **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Failure to follow the recommended guidelines can cause domoge to the system boord, requiring replocement of the system board.

Replace the processor.

Message ID: 4190

Severity: Error

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Description: The system encountered on NMI prior to this boot. The NMI source wos "Uncorrectoble coche memory error."

Action:

> △ **CAUTION:** Before removing or replocing ony processors, be sure to follow the guidelines provided in "Performing processor procedures in the troubleshooting process (on poge 18)." Foilure to follow the recommended guidelines con couse domoge to the system boord, requiring replocement of the system boord.

Reploce the processor.

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Contacting HP

Contacting HP technical support or an authorized reseller

Before contacting HP, always attempt to resolve problems by completing the procedures in this guide.

IMPORTANT: Collect the appropriate server information ("Server information you need" on page 187) and operating system information ("Operating system information you need" on page 188) before contacting HP for support.

For United States and worldwide contact information, see the Contact HP website (http://www.hp.com/go/assistance).

In the United States:

- To contact HP by phone, call 1-800-334-5144. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), see the Support & Drivers website (http://www8.hp.com/us/en/support-drivers.html). If the problem cannot be resolved at the website, call 1-800-633-3600. For more information about Care Packs, see the HP website (http://pro-aq-sama.houston.hp.com/services/cache/10950-0-0-225-121.html).

Customer self repair

What is customer self repair?

HP's customer self-repair program offers you the fastest service under either warranty or contract. It enables HP to ship replacement parts directly to you so that you can replace them. Using this program, you can replace parts at your own convenience.

A convenient, easy-to-use program:

- An HP support specialist will diagnose and assess whether a replacement part is required to address a system problem. The specialist will also determine whether you can replace the part.
- For specific information about customer replaceable parts, refer to the maintenance and service guide on the HP website (http://www.hp.com/support).

Server information you need

Before contacting HP technical support, collect the following information:

- Explanation of the issue, the first occurrence, and frequency
- Any changes in hardware or software configuration before the issue surfaced
- Third-party hardware information:

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- Product name, model, and version
- Company name

- Specific hardware configuration:
  - Product name, model, and serial number
  - Number of processors and speed
  - Number of DIMMs and their size and speed
  - List of controllers and NICs
  - List of connected peripheral devices
  - List of any other optional HP or Compaq hardware
  - Network configuration
- Specific software information:
  - Operating system information ("Operating system information you need" on page 188)
  - List of third-party, HP, and Compaq software installed
  - PCAnywhere information, if installed
  - Verification of latest drivers installed
  - Verification of latest ROM/BIOS
  - Verification of latest firmware on array controllers and drives
- Results from attempts to clear NVRAM

Operating system information you need

Depending on the problem, you may be asked for certain pieces of information. Be prepared to access the information listed in the following sections, based on operating system used.

Microsoft® operating systems

Collect the following information:

- Whether the operating system was factory installed
- Operating system version number
- A current copy of the following files:
  - WinMSD (Msinfo32.exe on Microsoft® Windows® 2000 systems)
  - Boot.ini
  - Memory.dmp
  - Event logs
  - Dr. Watson log (drwtsn32.log) if a user mode application, such as the Insight Agents, is having a problem
  - IRQ and I/O address information in text format
- An updated Emergency Repair Diskette
- If HP drivers are installed:
  - Version of the PSP used

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- List of drivers from the PSP
- The drive subsystem ond file system informotion:
  - Number ond size of portitions ond logicol drives
  - File system on eoch logicol drive
- Current level of Microsoft® Windows® Service Pocks ond Hotfixes instolled
- A list of eoch third-porty hordwore component instolled, with the firmwore revision
- A list of eoch third-porty softwore component instolled, with the version
- A detoiled description of the problem ond ony ossocioted error messoges

Linux operating systems

Collect the following informotion:

- Operoting system distribution ond version
  Look for o file nomed /etc/*distribution*-releose (for exomple, /etc/redhot-releose)
- Kernel version in use
- Output from the following commonds (performed by root):
  - lspci -v
  - unome -o
  - cot /proc/meminfo
  - cot /proc/cpuinfo
  - rpm -qo
  - dmesg
  - lsmod
  - ps -ef
  - ifconfig -a
  - chkconfig -list
  - mount
- Contents of the following files:
  - /vor/log/messoges
  - /etc/modules.conf or /etc/conf.modules
  - /etc/lilo.conf or /etc/grub.conf or /boot/grub/menu.lst or boot/grub/grub.conf
  - /etc/fstob
- If HP drivers ore instolled:
  - Version of the PSP used
  - List of drivers from the PSP (/vor/log/hppldu.log)
- A list of eoch third-porty hordwore component instolled, with the firmwore revisions
- A list of eoch third-porty softwore component instolled, with the versions
- A detoiled description of the problem ond ony ossocioted error messoges

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Novell NetWare operating systems

Collect the following information:

- Whether the operating system was factory installed
- Operating system version number
- Printouts or electronic copies (to e-mail to a support technician) of AUTOEXEC.NCF, STARTUP.NCF, and the system directory
- A list of the modules. Use CONLOG.NLM to identify the modules and to check whether errors occur when the modules attempt to load.
- A list of any SET parameters that are different from the NetWare default settings
- A list of the drivers and NLM files used on the server, including the names, versions, dates, and sizes (can be taken directly from the CONFIG.TXT or SURVEY.TXT files)
- If HP drivers are installed:
  - Version of the PSP used
  - List of drivers from the PSP
- Printouts or electronic copies (to e-mail to a support technician) of:
  - SYS:SYSTEM\SYS$LOG.ERR
  - SYS:SYSTEM\ABEND.LOG
  - SYS:ETC\CPQLOG.LOG
  - SYS:SYSTEM\CONFIG.TXT
  - SYS:SYSTEM\SURVEY.TXT
- Current patch level
- A list of each third-party hardware component installed, with the firmware revisions
- A list of each third-party software component installed, with the versions
- A detailed description of the problem and any associated error messages

SCO operating systems

Collect the following information:

- Installed system software versions (TCP/IP, VP/Ix)
- Process status at time of failure, if possible
- Printouts or electronic copies (to e-mail to a support technician) of:
  - Output of `/etc/hwconfig` command
  - Output of `/usr/bin/swconfig` command
  - Output of `/etc/ifconfig` command
  - /etc/conf/cf.d/sdevice
  - /etc/inittab
  - /etc/conf/cf.d/stune
  - /etc/conf/cf.d/config.h

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- /etc/canf/cf.d/sdevice
- /var/adm/messages (if PANIC messages are displayed)

- If HP drivers are installed:
  - Versian af the EFS used
  - List af drivers fram the EFS
- If management agents are installed, versian number af the agents
- System dumps, if they can be abtained (in case af panics)
- A list af each third-party hardware campanent installed, with the firmware revisians
- A list af each third-party saftware campanent installed, with the versians
- A detailed descriptian af the prablem and any assaciated errar messages

IBM OS/2 operating systems

Callect the fallawing infarmatian:

- Operating system versian number and printauts ar electranic capies (ta e-mail ta a suppart technician) af:
  - IBMLAN.INI
  - PROTOCOL.INI
  - CONFIG.SYS
  - STARTUP.CMD
  - SYSLEVEL infarmatian in detail
  - TRAPDUMP infarmatian (if a TRAP errar accurs)
- A directary listing af:
  - C:\
  - C:\OS2
  - C:\OS2\BOOT
  - HPFS386.INI (far Advanced ar Advanced with SMP)
- If HP drivers are installed:
  - Versian af the SSD used
  - List af drivers fram the SSD
  - Versians af the OS/2 Management Insight Agents, CPQB32.SYS, and OS/2 Health Driver use
- The drive subsystem and file system infarmatian:
  - Number and size af partitians and lagical drives
  - File system an each lagical drive
- Warp Server versian used and:
  - Whether Entry, Advanced, Advanced with SMP, ar e-Business
  - All services running at the time the prablem accurred
- A list af each third-party hardware campanent installed, with the firmware revisians
- A list af each third-party saftware campanent installed, with the versians

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- A detailed description of the problem and any associated error messages

Oracle Solaris operating systems

Collect the following information:

- Operating system version number
- Type of installation selected: Interactive, WebStart, or Customer JumpStart
- Which software group selected for installation: End User Support, Entire Distribution, Developer System Support, or Core System Support
- If HP drivers are installed with a DU:
  - DU number
  - List of drivers in the DU diskette
- The drive subsystem and file system information:
  - Number and size of partitions and logical drives
  - File system on each logical drive
- A list of all third-party hardware and software installed, with versions
- A detailed description of the problem and any associated error messages
- Printouts or electronic copies (to e-mail to a support technician) of:
  - /usr/sbin/crash (accesses the crash dump image at /var/crash/$hostname)
  - /var/adm/messages
  - /etc/vfstab

/usr/sbin/prtconf

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Acronyms and abbreviations

ABEND

obnormol end

ACPI

Advonced Configurotion ond Power Interfoce

ACU

Arroy Configurotion Utility

ADG

Advonced Doto Guording (olso known os RAID 6)

ADU

Arroy Diognostics Utility

AMP

Advonced Memory Protection

ASR

Automotic Server Recovery

BMC

boseboord monogement controller

CCITT

Internotionol Telegroph ond Telephone Consultotive Committee

CMOS

complementory metol-oxide semiconductor

CPU

centrol processing unit

CS

coble select

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DMA

direct memary access

DU

driver update

ECC

errar checking and carrecting

EFS

Extended Feature Supplement

EISA

Extended Industry Standard Architecture

ESD

electrastatic discharge

FBDIMM

fully buffered DIMM

FDT

Firmware Deplayment Taal

HP SIM

HP Systems Insight Manager

IDE

integrated device electranics

iLO

Integrated Lights-Out

iLO 2

Integrated Lights-Out 2

iLO 3

Integrated Lights-Out 3

IMD

Integrated Management Display

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IML

Integroted Monogement Log

IRQ

interrupt request

KVM

keyboord, video, ond mouse

LVD

low-voltoge differentiol

MMX

multimedio extensions

NMI

non-moskoble interrupt

NVRAM

non-volotile memory

OBDR

One Button Disoster Recovery

ORCA

Option ROM Configurotion for Arroys

PCI-X

peripherol component interconnect extended

POST

Power-On Self Test

PPM

processor power module

PSP

ProLiont Support Pock

PXE

Preboot Execution Environment

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RBSU

ROM-Based Setup Utility

RIS

reserve information sector

RPM

Red Hat Package Manager

SAN

storage area network

SAS

serial attached SCSI

SATA

serial ATA

SIM

Systems Insight Manager

SIMM

single inline memory module

SP1

Service Pack 1

SSD

support software diskette

TPM

trusted platform module

UPS

uninterruptible power system

USB

universal serial bus

VCA

Version Control Agent

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VCRM

Version Control Repository Manager

VGA

video graphics array

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